

BEDFORD COMPREHENSIVE PLAN

Produced by:

**The Bedford Comprehensive Plan Steering Committee and
Bedford Planning Board with the assistance of consultants:**

Kenneth M. Kreutziger, FAICP

Ken Kreutziger, FAICP

Hastings-Murphy Associates

Bob Murphy, Ph.D., P.E.

December 2002

Contents

- 1. Goals**
- 2. Land Use**
- 3. Housing**
- 4. Economic Development**
- 5. Natural and Cultural Resources**
- 6. Open Space and Recreation**
- 7. Services and Facilities**
- 8. Circulation**
- 9. Implementation**
- 10. Appendix (General Law Chapter 41: Section 81D)**

The “Town of Bedford Open Space and Recreation Plan” and the “Comprehensive Affordable Housing Plan, Town of Bedford” are included by reference as part of this plan.

Produced by:

**The Bedford Comprehensive Plan Steering Committee and
Bedford Planning Board with the assistance of consultants:**

Kenneth M. Kreutziger, FAICP

Ken Kreutziger, FAICP

Hastings-Murphy Associates

Bob Murphy, Ph.D., P.E.

Chapter 1

GOALS AND POLICIES

A Vision is a consensus as to where the Town wants to be in the future, whereas Goals and Policies provide a sense of direction in obtaining the Vision. A clear realistic statement of the community vision, goals and policies is needed to provide a basis for the master plan and for citizen input.

BEDFORD VISION STATEMENT

The Town of Bedford envisions its small-town character enhanced over the next twenty years as it moves into the twenty-first century. Both the historically significant architectural resources and the beauty of the center of Town distinguish this character. The center of Town is a functional area that emanates from the Town Common at The First Parish Unitarian Universalist Church and as the central focus of town includes governmental, educational, recreational and public assembly activities supplemented by small shops and businesses. The Town sees its architectural heritage preserved and the center of Town strengthened as the central community focus, and that in Bedford:

- Traffic congestion is alleviated;
- The Great Road is a linear, pedestrian-friendly environment with street trees, attractive signage and stores in scale with the environs and close to the street;
- A system of sidewalks and trails provides a network within and between neighborhoods, commercial areas, and public facilities;
- Substantial open space is preserved supporting small-town character, providing balance to developed areas, and protecting our natural resources;
- A range of activities for social interaction and services for social needs is provided, with particular emphasis on specific activities for youth and seniors;
- Active and passive recreational needs are met for residents of all age groups and physical capabilities;
- Superior public education is provided by a diverse educational program; and
- Housing choices for different types of units are available and affordable for all.

BEDFORD GOALS AND POLICIES STATEMENT

Bedford residents and officials achieved broad consensus on several goals, which serve as an expression of our basic community values. The policies are guidelines for the development of more concrete recommendations in the Comprehensive Plan to attain the goals. Together these goals and policies serve as a publicly accepted, long-range policy statement, which provides direction toward achieving our Vision of Bedford's future.

I. Implementation Goal

The Comprehensive Plan will be a functional document, used on a daily, continuing basis to implement the policies and actions necessary to ensure that our goals are implemented and our vision is realized.

Policies:

- All Town Boards and Departments conduct periodic reviews of their programs, actions, rules, and regulations, and assess their consistency with the Comprehensive Plan in their annual report.
- The Planning Board make an annual assessment of progress towards implementation of the Comprehensive Plan and provide a Report to the Town at Annual Town Meeting.
- Explore public/private alliances to achieve goals of the Comprehensive Plan.

II. Small Town Character and Civic Appearance Goal

Preserve and enhance Bedford's small town character, emphasizing the beauty of civic spaces and buildings as the Town incorporates inevitable change and growth.

Policies:

- Develop the Town Common area into an obvious physical focal point for the Town, creating a more apparent Bedford Center of Town, safe and pedestrian-friendly, a functional center for family and social activities.
- Reinforce pride of Bedford's small town heritage through preservation of its historic and cultural properties and sites, strengthening of its Historic District through the high standards required by the Historic District Commission during its permitting process, education of its past, and a collection of its records and artifacts.
- Transform the Great Road strip into a linear commercial park through reorganization and pedestrian orientation to include street trees, sidewalks, green spaces, shopping adjacent to the sidewalks, attractive signage, and parking to the rear.
- Acquire or preserve important open spaces along major roads and within neighborhoods and develop a program to preserve and replace shade trees to enhance the small town New England atmosphere.
- Enhance appearance of roadway entries into Bedford in a way that instills town pride.

-
- Develop design guidelines for new development and redevelopment directed toward preserving and reinforcing small town character and aesthetics.

III. Land Use and Growth Management Goal.

Plan and manage growth with the objectives of maintaining a balance of land uses, enhancing small town character, and improving quality of life in Bedford.

Policies:

- Ensure the highest quality design and construction of public facilities and all commercial uses through required design review and building inspection services.
- Provide for a balance of land uses to meet the needs of the widest range of family economic situations and individual living choices.
- Acquire open land to control growth, maintain small-town character, meet needs for housing, and provide passive and active recreation.
- Regularly review planning practices and zoning bylaws to insure that the most effective techniques are being used to achieve Town goals.
- Review development proposals to consider the impacts of development.
- Maintain strong planning relationships with Bedford's large institutions including Hanscom, Middlesex Community College, and the Veteran's Administration facility.
- Support and encourage regional cooperation to devise solutions for regional problems such as traffic, Hanscom, public transportation and flood control.
- Work with the Police Department and DPW to develop and implement measures to slow traffic and create quieter, cleaner, more livable communities.

IV. Housing Goals

Encourage a diversity of housing options providing for a multi-generational population of families with a wide range of income levels.

Policies:

- Protect and preserve the design character and scale of existing older neighborhoods.
- Encourage a range of affordable housing options in small clusters throughout the Town targeted toward also providing housing for young families and retired families.
- Encourage development of affordable housing by working with non-profit developers using the LIP (local initiative program).
- Explore town purchase of property for affordable housing.
- Explore regulatory options for encouraging, supporting, and requiring affordable housing.
- Meet and exceed state guidelines for affordable housing.
- Maintain a reasonable residential tax rate

V. Economic Development Goal

Maintain the economic job diversity and strong tax base in Town since it fosters a wide range of opportunity for people of different income levels while maintaining an emphasis on growth technology industries to provide new future job opportunities which can be accommodated through redevelopment and intensification of existing commercial properties.

Policies:

- Reconfigure existing retail areas to be pedestrian friendly and prevent additional strip malls.
- Develop assets such as Depot Park, bikeways, and Old Town Hall to improve quality of life and attract tourists who will contribute to the local economy.
- Develop a plan for aesthetic improvement of the Sheldon block, as it is fundamental to the image of the Town.
- Establish more public parking in the center of town looking to areas behind businesses.
- Establish and enforce aesthetic standards in commercial areas throughout Town, but especially along the Great Road.
- Promote mixed use, such as retail, in industrial and commercial areas with the objective to lessen traffic around town.
- Improve town and business communications to encourage the kind of community-enhancing development the town welcomes.
- Maintain a competitive commercial tax rate while controlling commercial development south of Rte. 3 to preserve the quality of life for town residents.

VI. Open Space and Natural Resources Goal

Acquire and preserve open space to protect natural resources and natural systems; link these tracts by greenways, trails, and/or bikeways; and develop an interconnected multi-use trail system connecting passive and active recreation areas to each other as well as to other areas such as residences, retail stores, offices, and industry.

Policies:

- Protect and preserve water resources, wetlands and important wildlife habitat.
- Protect and promote remediation of aquifer recharge areas for existing and future water supply.
- Increase public awareness, appreciation, and use of Bedford's conservation lands, streams, and ponds.
- Promote a cooperative and regional approach to open space and natural resource protection.
- Maintain, manage, and enhance access to public open spaces.
- Preserve large tracts of undeveloped lands in perpetuity.
- Acquire additional open space to provide buffers between incompatible land uses, serve neighborhood needs, and protect natural resources.
- Establish funding mechanisms providing immediately available funds for purchase of open space.

VII. Recreation Facilities and Services Goal

Obtain the necessary suitable land for passive and active recreation and develop appropriate facilities to provide opportunities for active and passive, formal and informal participation in recreational activities by all age groups and abilities.

Policies for Recreation Facilities and Services:

- Continue to evaluate the condition of existing facilities, their utilization and determine the optimum and maximum scheduled use for each field or facility.
- Provide for a broad range of recreation programs from competitive sports events or leagues to free play and sports instruction for youth and adults of all ages.
- Maintain a plan for recreation programs that is matched to use of facilities and thereby determine the maximum capacity for each program.
- Maintain a program for protection, use, maintenance and upgrade of recreational public resources such as Fawn Lake, Springs Brook Park, etc.

Policies for Potential Field House:

- Develop the means to address additional recreation needs of all residents with particular focus on activities for youth and adults such as a Field House containing a swimming pool and other sports facilities.
- Explore cost effective ways of designing and managing the facility including having the facility built as part of a school building program.
- Encourage use of the facility for youth and adult leagues as well as family and open recreational opportunities.

VIII. Public Facilities and Service Goals

Provide residents with responsive and efficient governmental services, a wide range of public facilities, and the necessary public utilities to support desired quality of life.

Policies for Public Services:

- Improve public input to governmental affairs by providing frequent and varied opportunities for public participation in order to maintain the small town feeling and encourage a sense of ownership and responsibility.
- Improve communication and coordination among town officials, school administrators, employees, and especially residents.
- Increase staffing levels of certain departments to help Town be more proactive.
- Actively encourage citizens to volunteer for committees, attend Town Meeting and public hearings, and to run for elective office.
- Seek economies in the delivery of services, e.g. through shared service arrangements with other municipalities or aggregating electric purchases.

Policies for General Public Facilities:

- Maintain a high degree of public safety within the Town, including provisions for police, fire, and emergency services.
- Maintain and upgrade public facilities, including parks, in accordance with a maintenance schedule and contemporary needs.
- Provide for expanding space needs of Town departments, including archiving records.
- Restore Old Town Hall to productive use, public or private.
- Purchase land now for projected town facilities in the future since the Town is approaching full buildout.
- Provide support for facilities and development of the arts to enhance the quality of life in Town.

Policies for School Facilities and Services:

- Support improvements in the quality of education and school building facilities in order to promote excellence in public education and fully meet the community's responsibility to provide for the next generation.
- Maintain and upgrade school building facilities including the provision of current technological equipment.
- Hold all administrators, teachers, students, and parents to high expectations and continue to move toward exceeding state and local standards.
- Provide educational facilities and learning plans for all ages implementing the attitude that learning is a continuous lifetime process through a strong and expanding adult education program.
- Enhance communication to increase community support for education.

Policies for Improving Community Center Facilities and Services:

- Develop the means to address the social and emotional needs of all residents with particular focus on activities for youth and seniors, such as a Community Center containing a teen club, aerobics/dance facilities, and administrative offices for Town services.
- Explore cost effective ways of designing and managing such a facility including upgrading the existing town center, or reconstructing a new facility on the site or at another location.
- Encourage the opportunity for multi-generational interaction while also providing retreats for both teens and seniors.
- Provide for a broad range of activities from meals and social occasions to crafts, learning and games.
- Provide administrative offices for town services such as the COA and community organizations such as the Babe Ruth League.
- Provide space for town based organizations to meet.

IX. Traffic/Transportation Goal

Construct, maintain and control a safe transportation system that provides for acceptable overall and peak hour levels of service on roadway segments and intersections, that

promotes alternatives to automobile travel, and that generates conditions more consistent with the desired small town atmosphere.

Policies:

- Develop solutions to tame traffic on the Great Road with a view to maintaining acceptable overall levels of service for on- and off-peak hour conditions.
- Improve methods of traffic flow to get around Bedford.
- Keep through traffic off quiet residential streets.
- Create a walkable, pedestrian-friendly community by expanding, maintaining and plowing the network of sidewalks; in congested areas such as the Center of Town and Great Road provide sidewalks on both sides of the street shielded from the roadway by street trees.
- Build and maintain bikeways and walking/jogging paths throughout Town as an alternative mode of transportation and for recreation.
- Advocate for employers in the town to encourage their employees to use public transportation, ride sharing, and other transportation demand management techniques.
- Actively participate in regional transportation planning organizations and efforts.

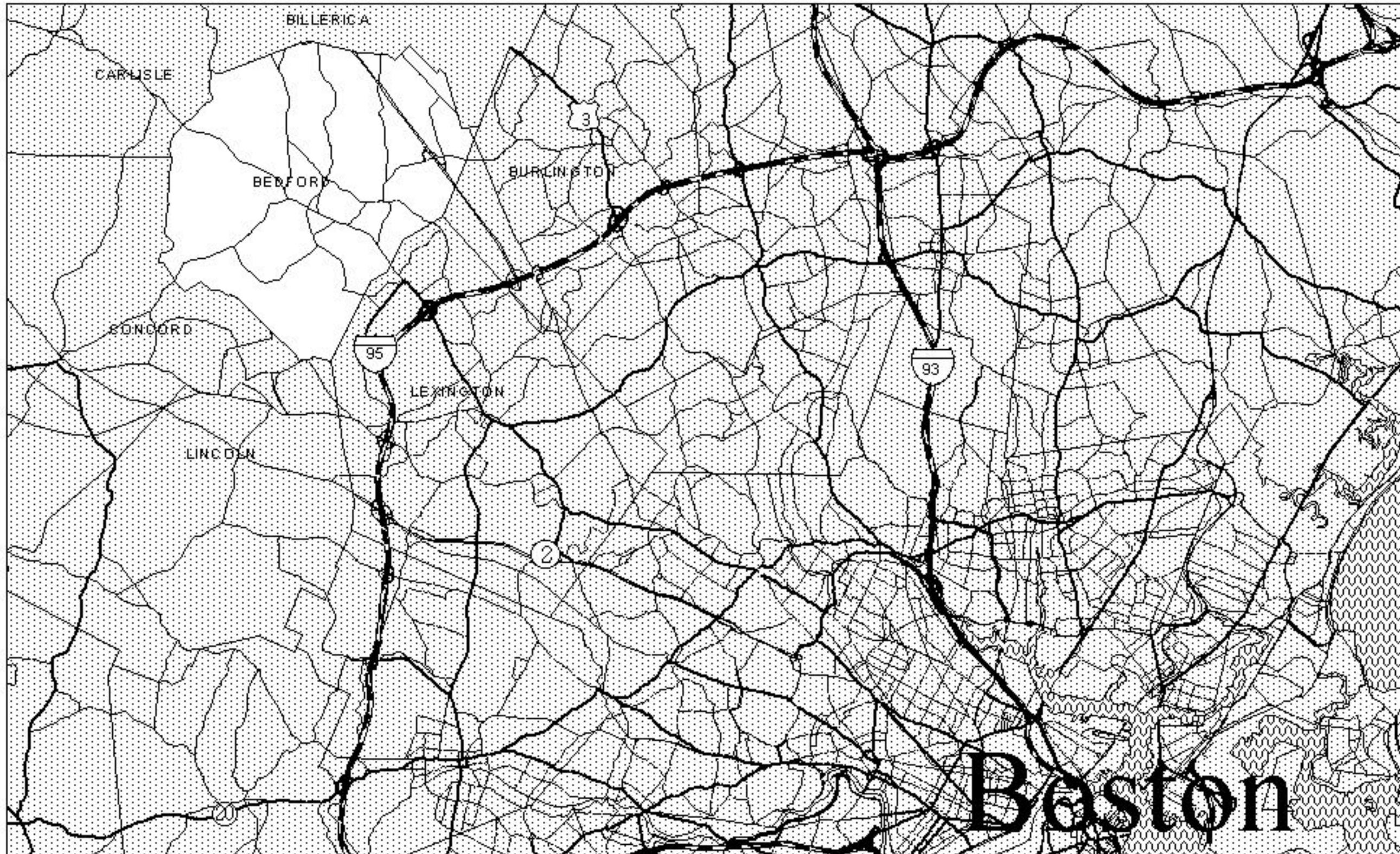
Chapter 2

LAND USE

Introduction	2
Overview of Development	3
Demographic Profile and Projections	4
Town Census	
Decennial Census	
Sex	
Age	
Race	
Buildout Analysis	8
Summary of Commercial and Industrial Buildout Analysis	
Summary of Residential Buildout Analysis	
Alternative Development Scenarios	13
Proposals and Recommendations	14

List of Figures

Figure 2-1 Locus Map.....	1A
Figure 2-2 Current Zoning Map.....	4A
Figure 2-3 Current Land Use	4B
Figure 2-4 Vacant Land	10A
Figure 2-5 Development Constraints.....	12A



The information depicted on this map is for planning purposes only.
It is not adequate for legal boundary definition or regulatory interpretation.

TOWN OF BEDFORD
COMPREHENSIVE PLAN

Figure 2-1 Locus Map

Produced by the
Bedford Planning Board
June 2001

LAND USE

Introduction

This chapter places Bedford in its regional setting, describes current land use patterns, offers a demographic profile, and then projects demographic and development trends, including commercial-industrial and residential Buildout analyses based on existing policies, alternate development scenarios, and proposals and recommendations.

As shown on Figure 2-1, Bedford is located fifteen miles northwest of Boston and is part of the Boston Metropolitan Area. The town is bounded on the north by Carlisle and Billerica, on the east by Burlington and Lexington, on the south by Lincoln, and on the west by Concord.

Bedford has a total area of 13.87 square miles and a land area of 13.74 square miles. The 1999 local Bedford census records a population of 12,696. Based on this census, Bedford supports a population density of 924 residents per square mile, relatively in the middle in comparison to the surrounding communities.

Population Density

<u>Town</u>	<u>Residents per Sq. Mile</u>
Carlisle	305
Lincoln	362
Concord	611
Bedford	924
Billerica	1,408
Lexington	1,922
Burlington	1,936

Population figures for Bedford as reported by the U.S. Census for 1970, 1980, and 1990 have traditionally been overstated by a large amount because the military personnel and their dependents living on Hanscom AFB were all reported to live in Bedford, while the family housing on the base is, in fact, primarily in Lincoln. The Bachelor Officers Quarters, however, are in Bedford. The above population density figures do not include either, (except for approximately 100 base personnel who have registered to vote in Lincoln and except for those in the Hanscom Air Force Base Mobile Homes and Bachelor Officers Quarters who have sent back census cards to the Bedford Town Clerk.)

Overview of Development

Figure 2-2 displays the current zoning within the town of Bedford.

Bedford, whose history is rich, retains evidence of its heritage in the pattern of its uses of land. The oldest homes lie along the original agrarian roadways that run between Bedford and its neighboring communities. Many of these homes were surveyed and documented in a Community-wide Historic Properties Survey performed by the Bedford Historic Preservation Commission in 1998 and published by the Bedford Historic Society in 1999. The town has one National Register District, the Old Bedford Center Historic District, with approximately 100 historic properties.

There are 4,616 households in Bedford, housed, in 4,059 residential units. Of these, 3,419, or 84 percent, are classified as "Single Family." The table, Summary of Existing Residential Uses, shows the distribution of housing in Bedford. This table is based on Assessors data and other supplementary housing counts. Military housing does not have as great an impact on Town services as other housing.

Summary of Existing Residential Uses, 2002

<u>Type</u>	<u>Units</u>
Single Family	3266
Condominium	322
Multi-Family	692
Mobile Homes	216
Single Room Occupancy (SRO)	<u>27</u>
Total	4716

While 12,996 people live in Bedford, approximately 23,000 persons work at the various commercial, industrial and institutional facilities within the town giving Bedford one of the highest jobs-to-homes ratios in the state, 5:1. This results in strong support for its tax base, but is also a major contributor to the most vexing problem in town, extremely congested traffic, mornings, evenings and mid-day.

Bedford's major business district flanks the town's center on both sides of the main thoroughfare, The Great Road. Industrial uses have long adjoined the now abandoned railroad right-of-way in the center of town. With the coming of town planning and zoning in the mid-20th Century, new industrial development was mainly relegated to the east side of town, on the far side of Route 3, a highway that was built in 1958 and is now a major commuter route.

Bedford is home to several federal and state installations that have helped to shape our town. Hanscom Field/Hanscom Air Force Base, which occupies a significant area of Bedford's south, and the Edith Norse Memorial Veteran's Hospital, located in the relative center of town, contribute to employment opportunities in Bedford while significantly adding to the demand for other development. The uncertain futures of both institutions contribute to both the challenges

and opportunities that may confront the town. Middlesex Community College opened a large campus in the northern end of Bedford on land that had been owned by a seminary and convent. The west edge of Bedford along the Concord River is and will remain undeveloped as part of the Great Meadows National Wildlife Refuge.

There are 126 properties in commercial use, occupying a total land area of 17.2 million square feet (396 acres) and a total building area of 6.4 million square feet.

There are 74 industrial properties, a total of nearly 1 million square feet of developed industrial space on a land area of 21.6 million square feet (496 acres).

Figure 2-3 shows the array of land uses, which have resulted from the combination of pre-zoning law "grandfathering" and subsequent increasingly controlled development. The Land Use Map, which had last been updated for Bedford's 1985 Comprehensive Plan, has been updated to include development that has occurred since that time. Significant areas of new development include:

New residential developments at Bedfordshire, Shawsheen Ridge, Governor Winthrop Estates, Hayden Highlands, Homestead Estates, Huckins Farm, Revolutionary Ridge, Bedford Meadows, Sweeney Ridge, and Page Hill.

Commercial development along the Great Road such as Great Road Village and 200 Great Road.

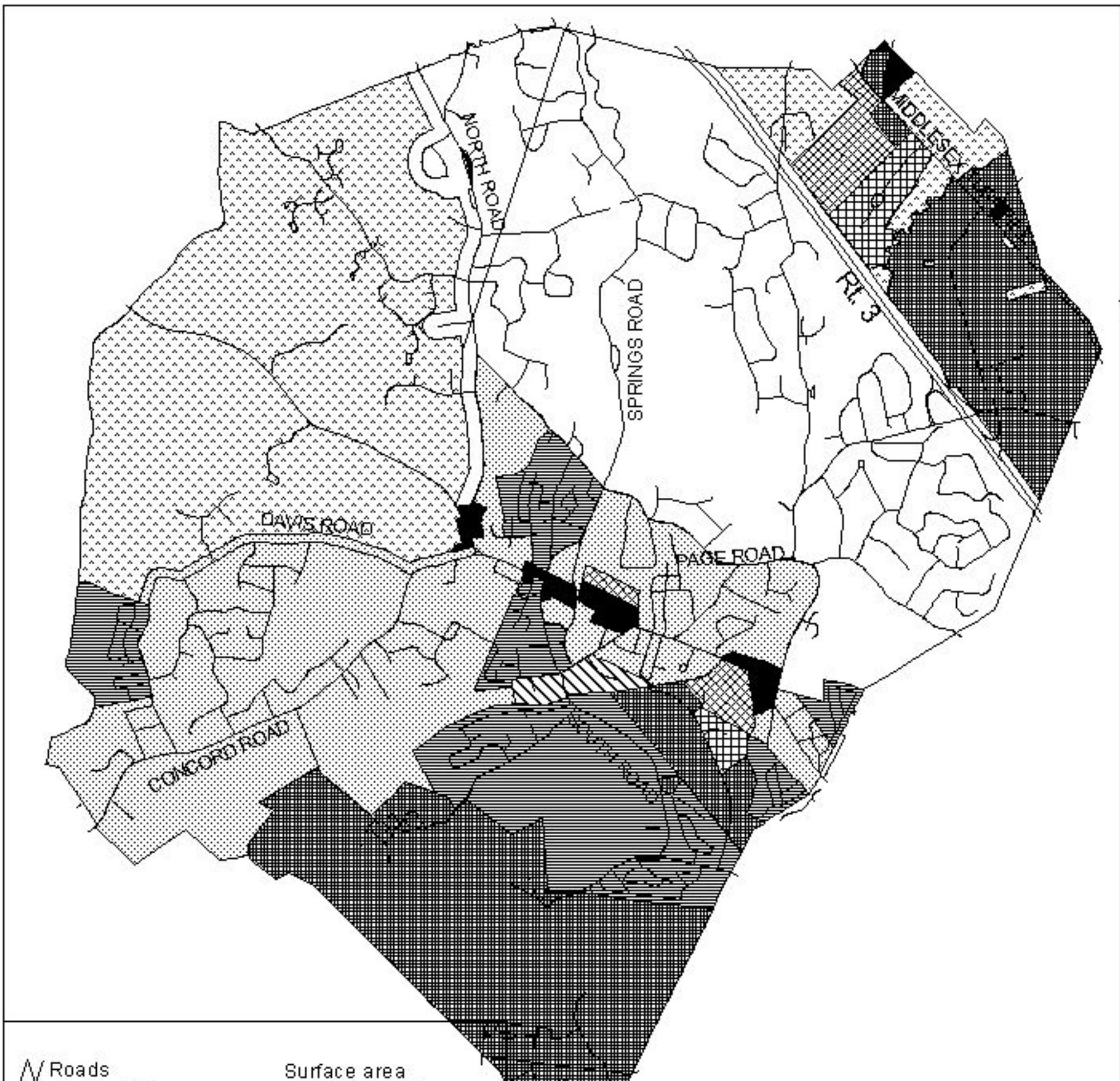
Industrial development in the Crosby Drive/ Middlesex Turnpike area.

Bedford is in the process of converting to a comprehensive Geographic Information System (GIS). When fully operational, this GIS mapping capability will combined the various Town databases such as the Assessor's database, the DPW's and the Town Clerk's, and enable the Town to access all the within databases to create combinations of reports and maps using all the data. As part of this comprehensive planning effort, preliminary maps have been generated on the GIS.

Demographic Profile and Projections

For most communities, ascertaining an accurate population count is a straightforward task. Not so in Bedford, since the U.S. Postal Service assigned a Bedford zip code to Hanscom Air Force base housing actually located in Lincoln.

Bedford's population, as reported by the U.S. Census, showed strong growth in the early to mid-1900s, climbing from 2,603 in 1930 to 5,234 in 1950. Between 1950 and 1960, Bedford experienced extremely rapid growth: the town's population more than doubled, going from 5,234 in 1950 to 10,969 in 1960. Growth continued in the following decade, reaching 13,513 in 1970, a 23.2 percent increase.



Zoning Districts	Surface area (acres)	(perc)
Residence R	1863.9	21.1%
Residence A	2697.8	30.5%
Residence B	1666.2	18.8%
Residence C	811.1	9.2%
Limited Business (A)	80.7	0.9%
General Business (B)	126.7	1.4%
Commercial	42.2	0.5%
Industrial (B)	95.4	1.1%
Industrial Park (A)	1468.6	16.6%



TOWN OF BEDFORD
COMPREHENSIVE PLAN

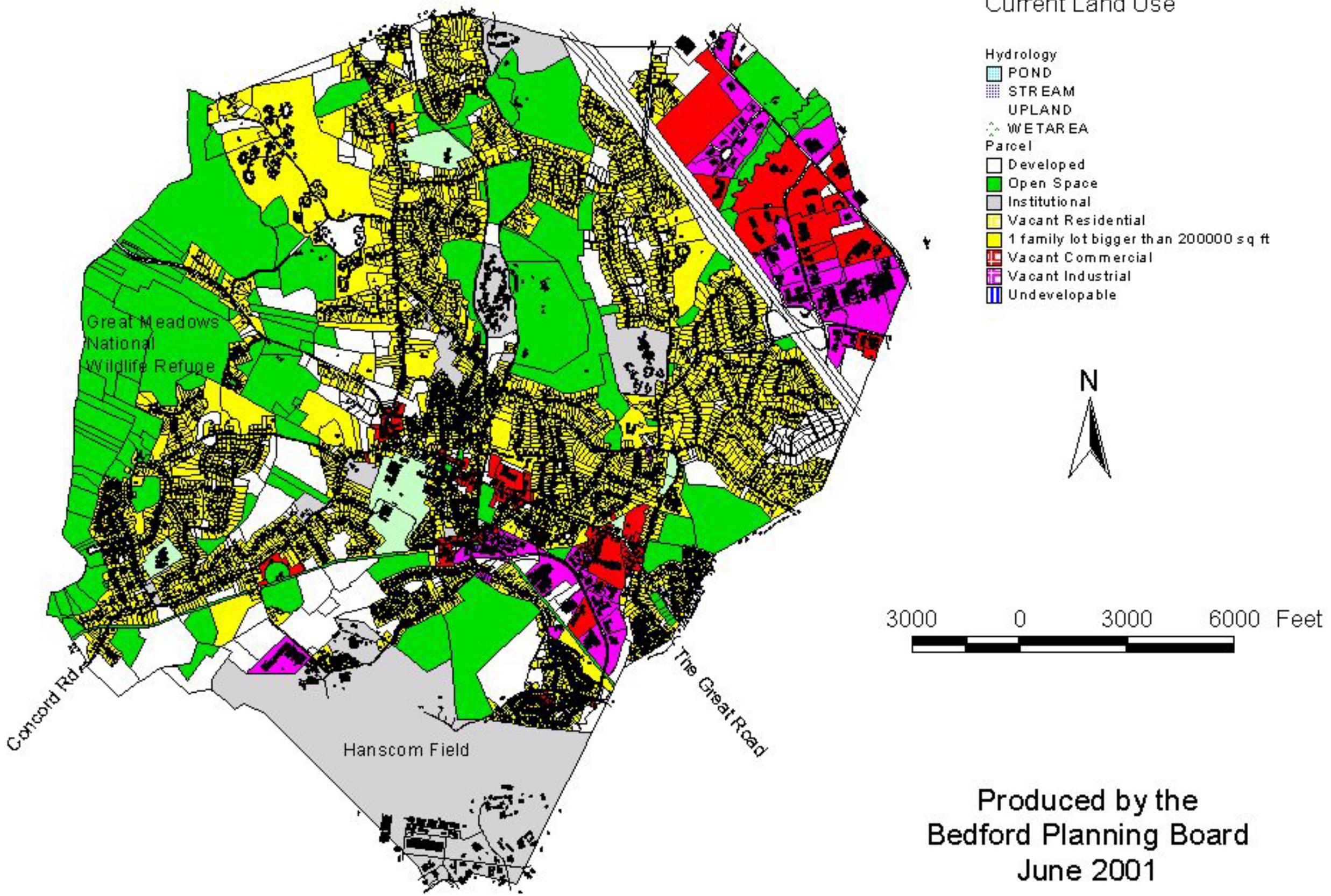
Figure 2-2 Current Zoning Map

Produced by the
Bedford Planning Board
June 2001

The information depicted on this map is for planning purposes only.
It is not adequate for legal boundary definition or regulatory interpretation.
Refer to Official Zoning Map for accurate details on Zoning District boundaries

TOWN OF BEDFORD COMPREHENSIVE PLAN

Figure 2-3
Current Land Use



Produced by the
Bedford Planning Board
June 2001

Bedford's apparent growth over this period was in large measure caused by the rapid expansion of Hanscom Air Force Base which introduced 1,061 units of relatively high density family housing (since reduced to 858) in the period of 1958 to 1970. There followed a significant decrease (22%) of the base population since its zenith that further confuses the picture presented by the "official" population figures. Additionally, the on-base residents will hereafter be reported as Lincoln residents, beginning with the 2000 Census.

Because of this difficulty in using the official decennial census, two analysis have been conducted:

- A first analysis is based on Town of Bedford Sources
- A second analysis is based on corrected Decennial Census figures.

Town Census

Using the official census, it is claimed that Bedford's population remained relatively stable since 1970, declining slightly in the early 90's and returning to 12,996 by 1990. Projections by the Massachusetts Institute for Social and Economic Research (MISER) predict a stabilization of Bedford's population at about this current level. The experience of those living in Bedford as well as the census data collected by the Town Clerk – which excludes the base housing in Lincoln – do not support either the claim or the forecast, at least in the near term. Correcting the "official" figures with an estimate of the persons residing on base would reduce them by about 2,350 for 1970 and 1980 and by some lesser amounts in 1960 during the base build up and in 1990 as the military presence on base was being reduced. The following table depicts the Bedford population in the 90's, as determined by the Town Clerk.

Population Change 1991-1999

<u>Year</u>	<u>Population</u>	<u>Change</u>	<u>%</u>
1991	11,310	-	-
1992	11,520	210	1.9
1993	11,440	-80	-0.7
1994	11,626	186	1.6
1995	11,745	119	1.0
1996	11,961	216	1.8
1997	12,157	196	1.6
1998	12,401	244	2.0
1999	12,696	295	1.6

Source: Town of Bedford Town Clerk

Since January 1993, the town population has steadily increased, coinciding with the current cycle of robust economic times and new residential development. In the last six years the population increased by an average of 209 persons per year, with a high of 295 and the low of 96. Over the

eight-year period from 1991 to 1999, there has been a total population increase of 1,386 persons or a 12.3% increase above the 1991 population.

Of at least as much importance to the future of Bedford is the dramatic shift in the age profile of the town. The table below depicts the percentages of Bedford's population by age group as reported in 1980, 1989 and 1999. (The 1980 data source is MISER. The 1989 and 1999 data comes from Bedford's Town Clerk. No two of the three data sets were compiled using the same age break points, so some small errors may be present in the individual entries in the table, which was derived from graphical analysis. However, the overall picture displayed by the table is accurate.)

Population Age Profiles

<u>Age Group</u>	1980	1989	1999	1980	1989	1999
	<u>Percentage</u>	<u>Percentage</u>	<u>Percentage</u>	<u>Persons</u>	<u>Persons</u>	<u>Persons</u>
0-5	5.4%	4.4%	4.9%	579	513	622
6-10	10.1%	6.7%	7.6%	1,083	780	965
11-15	8.4%	5.7%	5.8%	900	664	736
16-20	8.0%	6.7%	5.2%	858	780	660
21-25	7.6%	8.5%	4.1%	815	990	521
26-30	7.5%	8.4%	4.4%	804	978	559
31-35	7.6%	8.3%	6.2%	815	967	787
36-45	14.8%	15.4%	17.8%	1,587	1,794	2,260
46-55	11.2%	13.3%	14.3%	1,201	1,549	1,816
56-65	11.2%	10.3%	11.5%	1,201	1,200	1,460
66-75	5.0%	6.5%	9.0%	536	757	1,143
Over 75	3.2%	5.8%	9.2%	343	656	1,168

The proportion of young adults in Bedford's population is shrinking, and our percentage of senior citizens is increasing, with both trends apparently continuing into the future. Young families supported by blue-collar wage earners or professionals at the bottom of their career ladders can no longer afford to live in Bedford. Higher earning 35-45 year old professionals who are joining an aging established population are replacing them. This increasingly dominant generation of professionals has tended to delay the start of raising a family and is now creating new growth in the school-age population. The consequence to the town has been the need to enlarge all of Bedford's schools. Further, the population growth and the demographic shift have joined to create a dramatic increase in the need for town services. They have also created an extraordinary upward pressure on real estate values, which has placed a severe financial burden on the town's fixed-income seniors.

Decennial Census

The following data for the 2000 US Census and for the 1990 corrected data does not include the Hanscom AFB housing in Lincoln. These data, coupled with regional, confirm the major trends revealed by the town data, and allow comparisons with the Metropolitan Region and with the MAGIC sub-region.

Population

Total population	1990	1990 corrected	2000	% Change corrected
MAPC region	2922934	2922934	3066394	4.9%
MAGIC	135331	135331	144695	6.9%
Bedford	12996	11916	12595	5.7%

Bedford's population is growing faster than the region as a whole, but slower than the MAGIC sub-region.

Sex

In 1990, Bedford had a larger male population than the female (unlike the usual lower percentage generally found in the country). In 1990 the population in Bedford was 52.8% male and 47.2% female. This may be explained by local institutions with a predominantly male population, such as Hanscom Base or the VA Hospital. However this unusual inversed balance has turned in 2000 with a slightly higher percentage of females at 50.2% compared to 49.8% male.

Age

Bedford's median age is increasing at a fast pace relative to the other regions in the State such as the MAGIC or MAPC sub regions.

		Median age	Under 20 years	20 to 34 years	35 to 64 years	65 years and over
		(percentage of the population)				
MAPC region	1990	32.94	24%	29%	34%	13%
	2000	36.15	25%	23%	39%	13%
MAGIC	1990	36.25	25%	22%	41%	12%
	2000	39.12	28%	13%	45%	13%
Bedford	1990	36.87	22%	25%	39%	14%
	2000	42.1	25%	12%	45%	18%

The fact that the median age rose from 36.9 to 42.1 years does not summarize a more complex reality where the percentage of the youth increases, but where the number of young adults drastically falls.

¹ In 1990 Census Bedford figures included Block 906 E, which is actually mostly part of Lincoln. These figures have been corrected by subtracting this Block, in order to obtain a sensible 1990/2000 comparison.

Race

Bedford has followed the general trend with an increase of its Asian and Hispanic population, with figures close to the rest of MAGIC subregion. Still, Bedford remains less diversified than other areas of the Metro region, with a white population at 91% compared to 81% for the Metro region.

		White	Black or African American (percentage of the population)	Asian	Hispanic or Latino (of any race)
MAPC region	1990	87.4%	7.1%	3.2%	4.5%
	2000	81.2%	7.5%	5.4%	6.4%
MAGIC	1990	94.6%	1.5%	3.2%	1.8%
	2000	90.8%	1.3%	5.5%	2.0%
Bedford	1990	93.7%	2.7%	3.1%	1.5%
	2000	91.2%	1.7%	5.4%	1.8%

²

Buildout Analysis

The buildout analysis for Bedford identifies current land use patterns and estimates the potential for future development under existing zoning. This analysis was conducted in two parts: a commercial and industrial buildout analysis and a residential buildout analysis, which are summarized below.

The analysis was based on parcel-based data obtained from the Bedford Assessor's records, an accurate, authoritative and comprehensive source of data. In this database, property is classified according to a statewide use code established by the Massachusetts Department of Revenue. Estimates of future development potential are made by applying the allowable intensity of development (generally based on the "floor area ratio" in commercial and industrial zones and on minimum lot size requirements in residential areas) against the available square footage. Land that cannot be built upon because it is or is proximate to wetlands is removed from consideration.

Summary of the Commercial and Industrial Buildout Analysis

The commercial and industrial buildout analysis looked at all existing commercial and industrial properties and assessed the potential for future development on both undeveloped and underdeveloped parcels. There are 38.8 million square feet of area zoned commercial or

² This table only shows the figures for the races with highest population in Bedford. The sum of these figures can be under 100% as well as over.

industrial property upon which there are already approximately 7.4 million square feet of developed space, 6.4 commercial and 1.0 industrial. When wetlands are subtracted from the site areas and the applicable FAR densities of allowable development are applied, an additional 3.0 million square feet of commercial and 1.4 million square feet of industrial space could theoretically be developed.

Summary of the Residential Buildout Analysis

The residential buildout analysis is based on an estimate of the total area of currently vacant or underutilized residential parcels. Included are certain parcels which are not presently categorized by the Assessor's code as residential, but which could be subject to residential development. They are listed with Use Codes 601 and greater in the table, Residential Development Potential at Full Buildout found in the Appendix. They include large open space parcels and "Chapter 61" land (i.e., forested land, agricultural land, and recreational land). While it is not likely that all of this land will be developed for residential use, this analysis establishes a theoretical maximum development potential of single-family dwellings built under current zoning.

The residential buildout analysis identified all vacant residentially zoned lots and all residentially zoned parcels larger than 200,000 square feet (4.6 acres). The analysis assumes that any parcel that large with only a single residential unit on it can be further subdivided. Wetlands were subtracted to provide a net land area before the yield of potential lots was estimated.

The two zoning districts in Bedford where larger tracts of undeveloped land exist are in the Residence R (60,000 square foot lots) and Residence A (40,000 square foot lots). For the purpose of the analysis, a single prototypical minimum lot size was assumed to be 50,000 square feet, with an additional 20% added to allow for roads, lot configurations and topographies. Thus, for the purpose of this analysis, the unit area that is required to support the development of a single new house is assumed to be 60,000 square feet.

The total residential land area made up of parcels greater than 200,000 square feet is 37,045,018 square feet, or 850 acres. The potential for residential development on these lands is 441 dwelling units. Add to this one residence for each of the 120 smaller, currently vacant lots and the total potential buildout of residential units in Bedford is 561.

To cover all possibilities, an additional calculation identified the potential for development on the large institutional parcels in Bedford, Hanscom Field, the VA Hospital, Middlesex Community College, and the Old Causeway Road property owned by Harvard University.

One critical facet of residential development not included in the potential listed below is the effect of potential Chapter 40B comprehensive permit developments. If permitted, these developments, which are allowed increased housing unit density, could increase the development total by as many as 769 units, if Bedford has yet to meet its affordable housing quota of 10% set by state law, and if suitable parcels are made available for such development.

The table below summarizes the results, of the residential buildout analysis, including what is statistically possible for the unlikely conversion of the large institutional properties.

Summary of Residential Development Potential

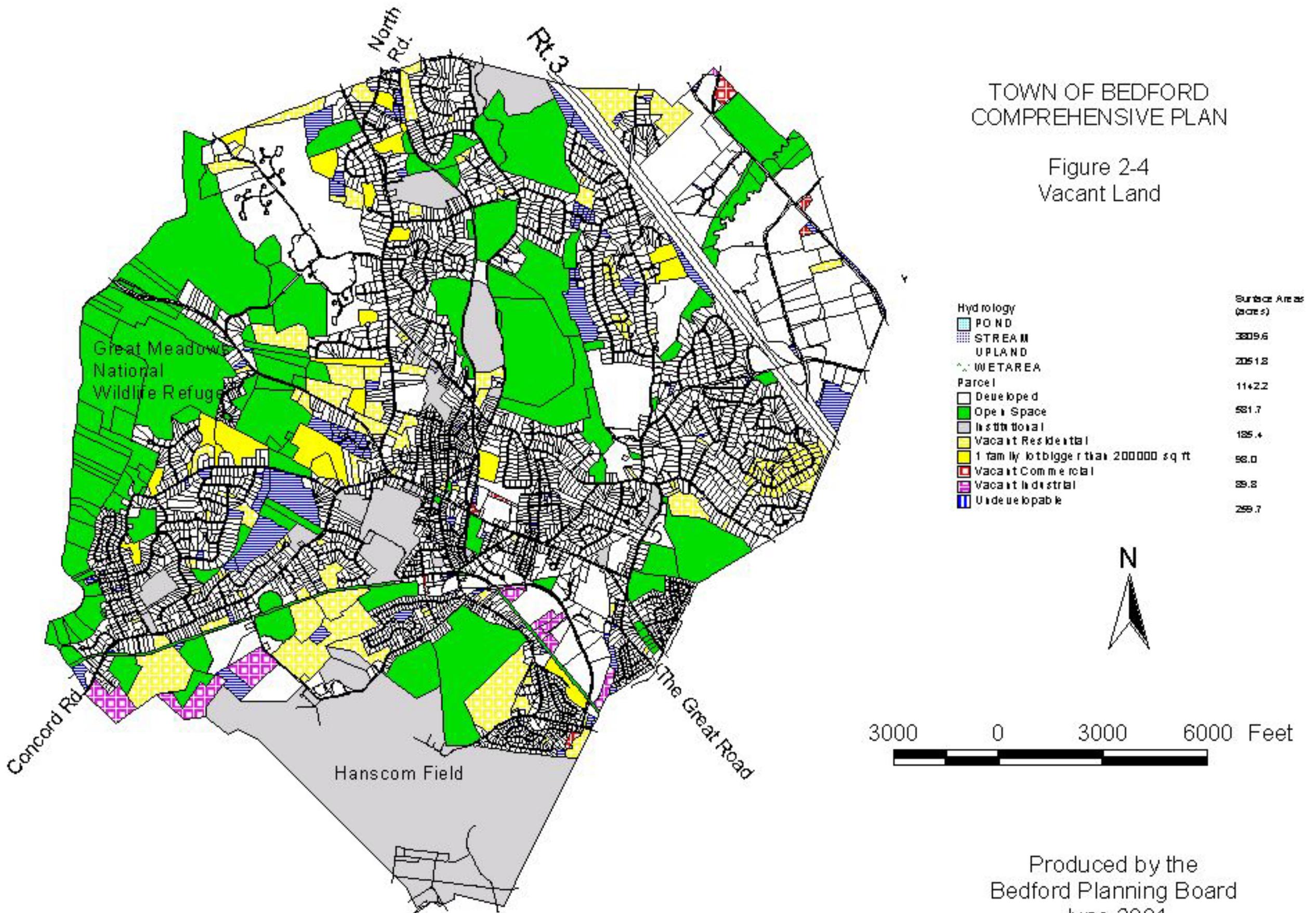
	<u>Land Area</u>	<u>Lot Yield</u>
Developable Lots > 200,000 SF	37,045,018	441
Developable Lots < 200,000 SF	<u>6,567,039</u>	<u>120</u>
Total	43,612,057	561
Other Large Parcels:		
Harvard University	3,428,172	39
VA Hospital	7,799,853	116
Middlesex Community College	7,716,653	107
Hanscom Field	36,429,228	592

Note: To include these other large parcels in the buildout for the Town would be irresponsible and alarmist. The lot yield shown assumes that all the existing structures are demolished and the entire area subdivided into single-family lots. Hanscom Field is zoned Industrial Park (A), which does not permit housing except by special permit as a mixed use development and would require rezoning to permit residential use.

Figure 2-4 depicts land that is currently vacant, while Figure 2-5 shows the major development constraints and identifies vacant lots with an area greater than 10 acres.

TOWN OF BEDFORD COMPREHENSIVE PLAN

Figure 2-4
Vacant Land



Produced by the
Bedford Planning Board
June 2001

(This page left blank intentionally)

Vacant or Primarily Vacant Parcels Greater Than 10 Acres

Label	Area (sq. ft)	Address	Land Use**
1	524833	032 Chelmsford Road	Vacant Res
2	1035560	466 Old Billerica Road	Vacant Res
3	3422058	170 Middlesex Turnpike	Vacant Com
4	832148	463 Old Billerica Road	Vacant Res
5	908514	017 Harvard Drive	Vacant Res
6	631405	136 North Road	Vacant Res
7	652795	082 Carlisle Road	Vacant Res
8a*	1275479	057 Concord Road	Prim. Vacant
8b*	380836	005 Davis Road	Prim. Vacant
9	653881	135 Shawsheen Road	Vacant Res
10	1969891	350 Concord Road	Vacant Res
11	823502	015 Turf Meadow Road	Vacant Res
12	765605	022 Evans Drive	Vacant Res
13	2231985	381 South Road	Vacant Res
14	966505	444 Concord Road	Vacant Ind
15	886396	444 Concord Road	Vacant Ind
16	865716	175 Hartwell Road	Vacant Ind
17	2327810	180 Hartwell Road	Vacant Res
18	476170	056 Evergreen Avenue	Prim. Vacant
19	435692	093 Springs Road	Prim. Vacant
20	438078	251A Old Billerica Road	Prim. Vacant

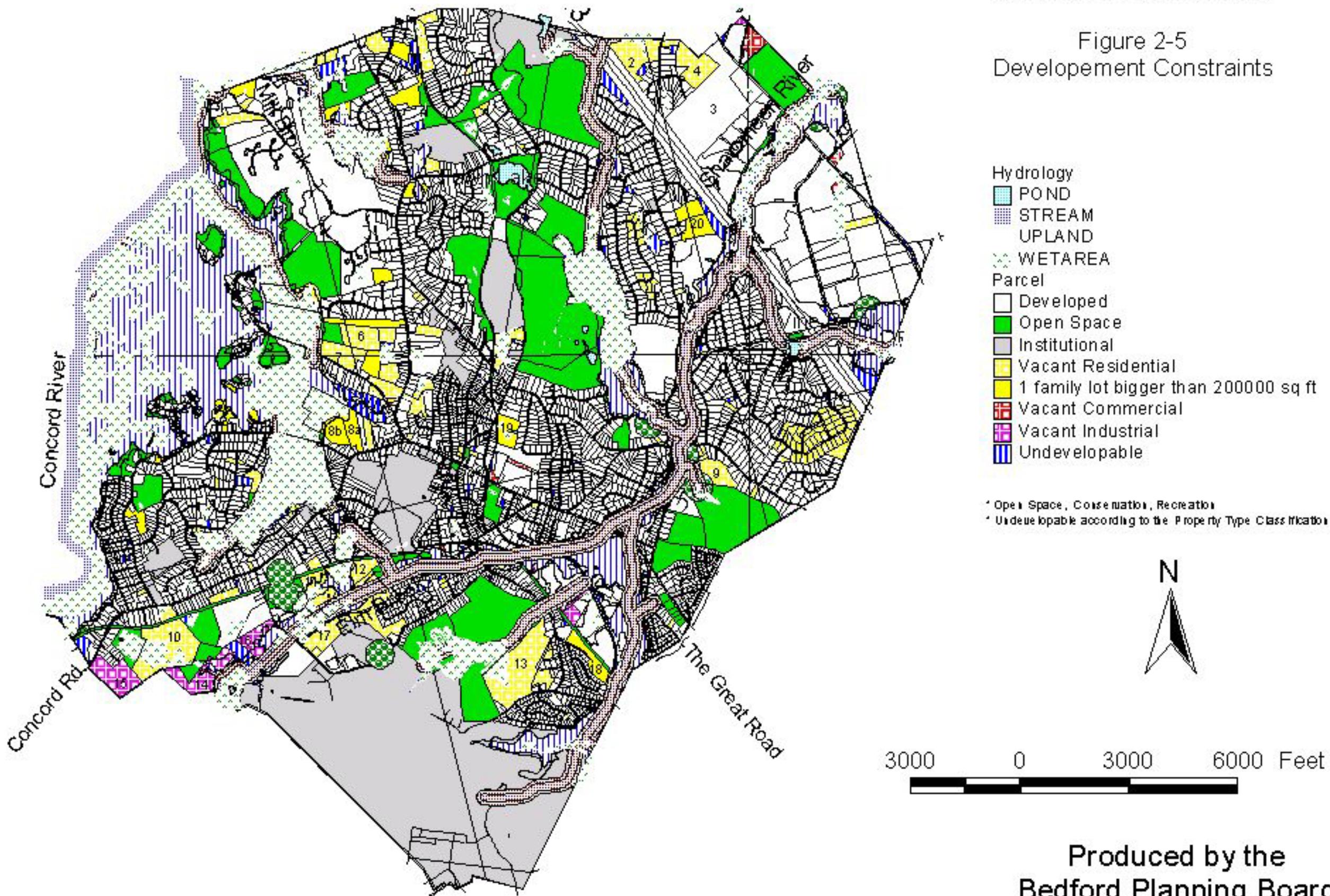
Label	Parcel ID	Map Lot	Owner
1	108	008 0002	Greenwood, Moses Est. of
2	84	011 0025	O'Connor, Mary M. & Thomas J.
3	93	012 0017	The Gutierrez Company (under agreement)
4	94	012 0033	O'Connor, Mary M. & Thomas J.
5	1009	034 0021	Hughes Lumber Co. Inc.
6	1202	035 0005	Kazarian, Huratch & Stephen Tr
7	1263	044 0001	Kazarian, Huratch & Stephen Tr
8a*	1592	053 0004	Mancuso, John S. & Christine
8b*	1925	053 0002A	Murray, Patricia A. Tr
9	2300	056 0053C	Finn, Ann M. Et Al
10	4094	068 0102	Cerasuolo, Rose C. Tr
11	3621	069 0009	Brown, Nathaniel K. Tr
12	3511	070 0001	Brown, Nathaniel K. Tr
13	4087	072 0033	Eisenhauer, Charles E. Est. of
14	4216	074 0021	Mass Port Authority
15	4236	074 0021	Mass Port Authority
16	4099	076 0001	Raytheon Company
17	3637	076 0003	Brown, Nathaniel K. Tr
18	4141	079 0150	Yauckoes, Johanna
19	1889	054 0109	MacGann, Mary K.
20	733	029 0022	Ceppi, Michael F. & Jenny C.

* Parcels 8a and 8b are to be considered together, since they are the sites of the proposed Avalon Bay development.

** Prim. Vacant land use stands for single-family lot parcels bigger than 200,000 sq. ft., and thus considered as underdeveloped or 'primarily vacant'

TOWN OF BEDFORD
COMPREHENSIVE PLAN

Figure 2-5
Development Constraints



Produced by the
Bedford Planning Board
June 2001

Alternative Development Scenarios

Based on the town's current land use policies, the buildout analysis indicates a potential for substantial additional commercial and industrial development. The existing overall development pattern is characterized by dispersed single-family housing, commercial development concentrated along The Great Road and, on the periphery, the light industrial development that attracts additional workers. New development continuing along these paths is likely to result in significant additional traffic and to have other impacts that would contribute to a further deterioration of mobility and Bedford's small town character. Given the potential impact presented by the buildout analysis, comprehensive review of appropriate development control mechanisms (e.g., zoning bylaw) should be undertaken with the aim of encouraging alternative development scenarios that reflect residents' desires to maintain Bedford's small town character.

Land use policies are an important tool in controlling the impact of development. Dispersing small areas of neighborhood-level commercial development could help reduce traffic congestion and maintain small-town character. An example of this pattern of dispersed, neighborhood level commercial development is found in Lexington. Small-scale shopping areas are located at major intersections such as Waltham Street and Route 2A, Woburn Street and Lowell Street, and Massachusetts Avenue in East Lexington. The types of stores and services at these locations are small food/convenience stores, dry cleaners, a hardware store, deli, bakery, and small coffee shops or restaurant/take-out food shops. These commercial areas provide services at the neighborhood level, encouraging pedestrian access and, by providing an alternative to shopping in Lexington center, helping to reduce traffic in the center of town.

There are opportunities to establish or reinforce small neighborhood shopping areas in Bedford. These shopping areas could be distributed throughout town, at major intersections in residential areas or near major activity centers such as Middlesex Community College and the VA hospital or on Middlesex Turnpike. These commercial areas could provide pedestrian access to buy a gallon of milk or a loaf of bread in residential areas, or for office complexes on Middlesex Turnpike, alternative lunch choices, banking services, or a place to get a haircut.

The scale, site layout, and architectural and landscape design of these commercial areas should reflect the character of the surrounding area. The objective in identifying potential locations for these shopping areas was to provide a commercial area within one mile of most neighborhoods. An appropriately scaled building might be of a size on the order of the recently constructed mini-mart at the junction of Carlisle and North Roads. While it might be larger, the "neighborhood" scale intent limits construction of what could be interpreted as a new "strip mall."

Provisions for limited convenience retail in conjunction with new office or industrial developments are to be encouraged. Zoning laws must be changed and developers offered incentives to incorporate such commercial uses within any new complexes in order to move forward on such change in Bedford.

Proposals and Recommendations

To address the vision of the Town and the goals that were derived from it, the following development related steps are recommended.

2-1. Maintain Small Town Character of Bedford

The foremost recommendation is to enhance the small town character that is valued by Bedford residents. The center of town and the town's historic resources should be preserved as the central focus of the community and their aesthetic qualities should be protected.

2-2. Reinforce the Integrity of Existing Residential and Commercial Areas

Existing residential neighborhoods should be protected from incompatible development and through traffic. The appearance of commercial areas should be upgraded. Native and disease resistant shade trees, shrubs and flowers should be abundant features of the streetscape in all districts.

Changes to the Bedford Zoning Bylaw are required to enhance the commercial areas along The Great Road area and the town center. These changes would focus on improving the aesthetics and accessibility of these areas through streetscaping and parking improvements. Both commercial buildings and parking facilities should be configured and clustered to encourage walking from store to store. Buildings should be located at the front of the site with parking to the rear. The visibility of new and existing parking areas should be buffered and landscaping within parking areas should be developed to reduce the visual impact of large parking lots. Streetscaping improvements, including native shade trees, planters, and benches would help to establish a pedestrian friendly environment.

2-3. Promote Mixed Use to Improve Balance Among Land Uses

A mixed-use pattern of land uses would tend to reduce traffic congestion on local roadways and encourage pedestrian and bicycle access. The development of small well-defined neighborhood commercial areas distributed throughout Bedford could be developed in combination with smaller residential units, public transportation and neighborhood parks.

The development of convenience retail uses within new commercial and industrial developments should be encouraged to serve the needs of their occupants and nearby residential areas. Bedford passed an industrial mixed use provision at the 2002 Annual Town Meeting. Mixed use provisions should be expanded to cover locations such as the Depot Park area as well as elsewhere in town.

2-4. Monitor and Control the Rate and Overall Level of Development

The buildout analysis indicates that there is the possibility of significant future development in Bedford. Both the rate of development and overall level of development should be monitored to assure that adequate public services and facilities are available and that traffic, parking and other impacts are not detrimental to Bedford's character. Proactive adjustments to the FAR, parking requirements and other zoning regulations and subdivision rules and regulations should be made as necessary to moderate the level of development.

2-5. Promote Small Businesses Along The Great Road

Amend the Zoning Bylaws to promote only small retail and professional services along The Great Road business district versus large office uses.

2-6. Preserve Open Space

Purchase open space and development rights or obtain conservation easements in order to contain growth and maintain small town character.

2-7. Purchase Land for Municipal Uses

Purchase land suitable for development of municipal facilities that will be needed in the future for schools, playing fields, watersheds etc. To address the vision of the Town and the goals that were derived from it, the following land purchase related steps are recommended.

The need for major capital expenditures for the DPW Facility, the Town Center and the High School has been documented. Solutions currently being discussed do not require land purchase.

Desirable open space land purchases for conservation and recreation use are identified in the Town's approved Open Space and Recreation Plan. Considerations for additional playfields are summarized in Chapter 6. Proposed purchases are typically brought before the Town Meeting for approval when specific parcels in the plan come on the market. The importance of the parcels in question and the financial condition of the Town at that time are usually determining factors as to whether the parcels in question are purchased. Bedford, through its recent approval of participation in the State's Community Preservation Act, will be accumulating some funds for open space purchases.

Chapter 3

HOUSING

Introduction	1
Existing Housing Supply	2
1990 Statistical Profile	
Housing Trends since 1990	
Analysis of Housing Needs	8
Historical Perspective	
Local Initiatives to Promote Affordable Housing in Bedford	
Affordable Housing	
Future Housing Needs	10
Proposals and Recommendations	10

List of Figures

3-1	Housing Characteristics	2A
-----	-------------------------------	----

Introduction

This chapter provides an overview of housing in Bedford including historic trends in the town's development, existing housing characteristics, and an analysis of future housing needs. Finally, it presents a series of proposals and recommendations based on the goals established for housing.

The most recent study of Bedford housing needs was completed in 2002. The results of that study are contained in Bedford's Comprehensive Affordable Housing Plan. We refer all readers to that in-depth study, and we both support and reinforce its conclusions in this Chapter of the Comprehensive Plan.

Bedford housing objectives are summarized below, as articulated through the concerns expressed by local leaders and from the housing needs documented by housing data, plans and surveys.

- **To meet local housing needs along the full range of incomes, promoting diversity and the stability of individuals and families living in Bedford.**
- **To leverage other public and private resources to the greatest extent possible.**
- **To insure that new housing creation is harmonious with the existing community.**
- **To surpass the 10% State standard for affordable housing.**

The methodology for preparing this chapter included review of prior studies, collection and analysis of demographic data from the U.S. Census and other sources, and meetings with representatives of Bedford's housing committees.

Existing Housing Supply

1990 Statistical Profile

According to the 1990 Census of Population and Housing, in 1990 there were 4,602 housing units in Bedford. This represented 793 additional units, or 20.8 percent, an increase from 3,809 units in 1980. Of the 1990 total, nearly 75 percent, or 3,389 units, were single-family homes. The remaining 25 percent included 2-4 unit structures (11.5 percent) and structures with 5 or more units (10.2 percent). Eighty percent of the land with housing on it has single-family housing. The location of housing types is shown in Figure 3-1.

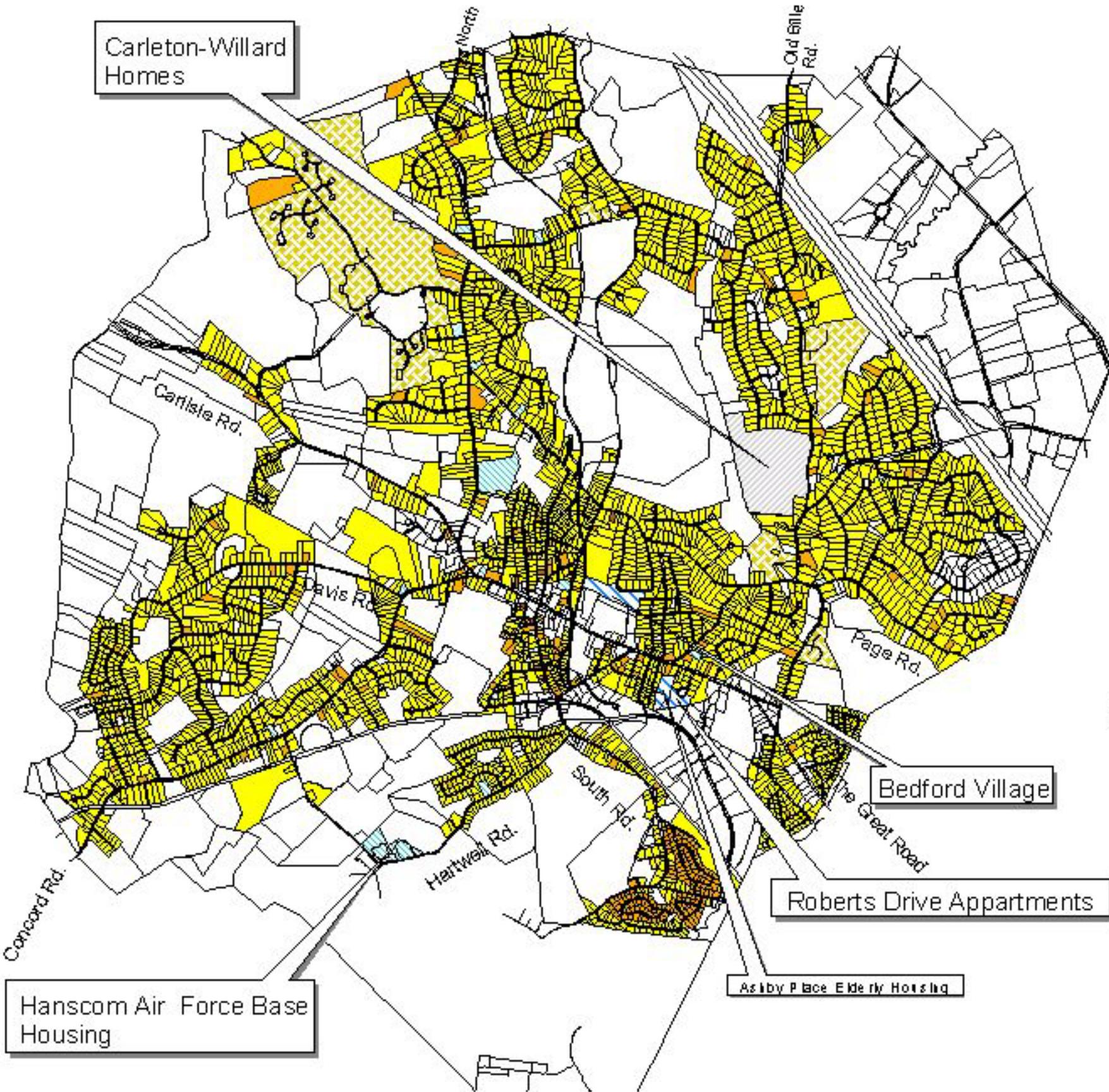
Of the 4,602 housing units in Bedford, 4,479 or 97.3 percent were occupied and 123, or 2.7 percent, were vacant. Of the occupied units, 3,195, or 71.3 percent, were owner occupied and 1,284, or 28.7 percent, were renter occupied. The median value of owner occupied units was \$228,200 and the median rent was \$712.

The vacancy rate is an indicator of the availability of housing. With only a 1.3 owner vacancy rate and a 2.3 percent rental vacancy rate in 1990, Bedford had a relatively tight housing market.

The following tables summarize Bedford's housing characteristics based on 2000 Census of Population and Housing.

TOWN OF BEDFORD COMPREHENSIVE PLAN

Figure 3-1 Housing Characteristics



Parcel	Residential parcels Surface Area (acres)	(perc)
Non Residential	2582.0	80.7%
Single Family	332.5	10.4%
Condominium	152.1	4.8%
Two Family	2.5	0.1%
Three Family	40.5	1.3%
Multiple Houses	18.8	0.6%
Apartments	0.0	0.0%
Rooming and Boarding Houses	67.9	2.1%
Other Congregate Hous.		



Produced by the
Bedford Planning Board

June 2001

Existing Housing Supply

	1990		1990 corrected *		2000	
	Units	Percent	Units	Percent	Units	Percent
Total Units	4602		4208		4708	
Occupied Units	4479	97.3%	4088	97.1%	4621	98.2%
Owner Occupied	3195	71.3%	3059	74.8%	3705	80.2%
Renter Occupied	1284	28.7%	1029	25.2%	916	19.8%
Total Vacant	123	2.7%	120	2.9%	87	1.8%
Owner Vacancy Rate		1.3%				0.3%
Rental Vacancy Rate		2.3%				2.6%

1990 Census Data were corrected by subtracting block 906 E, which was counted in Bedford whereas most of the housing is in Lincoln. No correction needed to be made for 2000 since it did follow the town boundary. The corrected figures show that Bedford has experienced a 12% increase of its Housing Units, with renter occupied units falling under 20% of the total number of Occupied Units.

Type of Structure

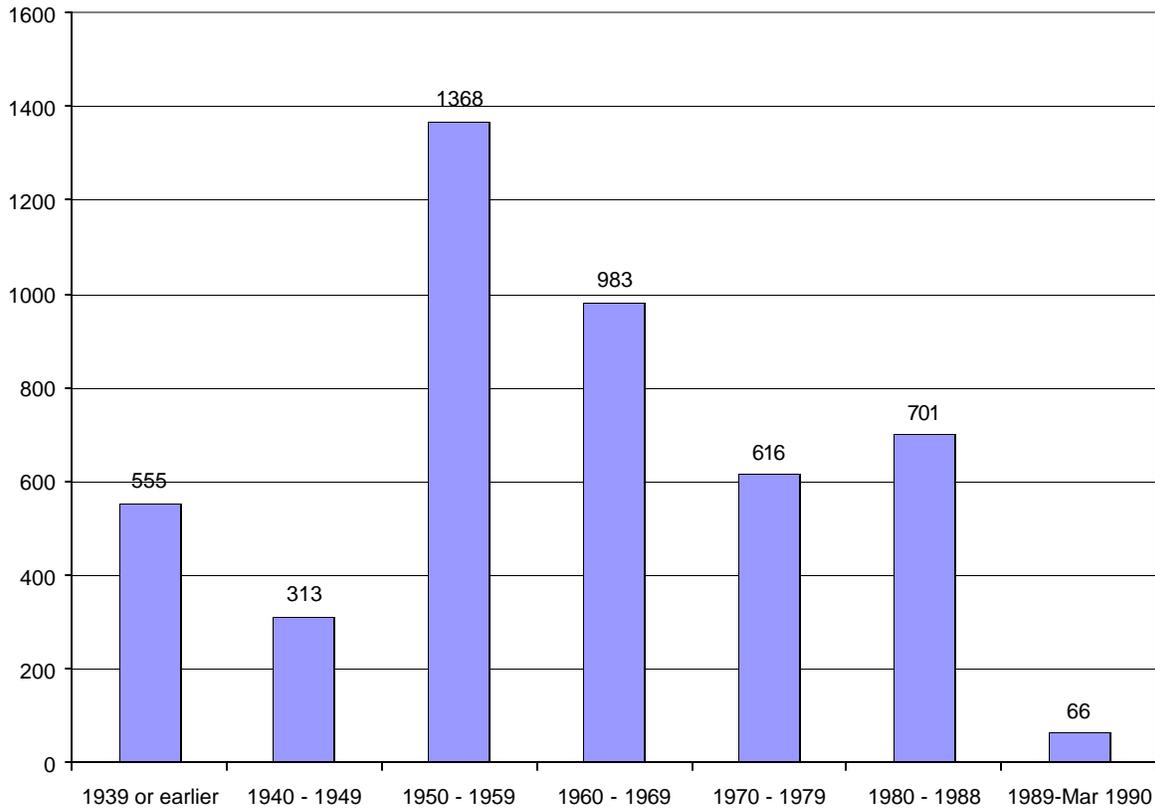
Single Unit	3,389	73.6%
2-4 Units	528	11.5
5 or more	469	10.2
Other	216	4.7

The year of construction is a generalized indicator of the condition of housing stock in a community. According to the 1990 U.S. Census, nearly 50% of Bedford's existing housing stock was built before 1959. Nearly 30% of Bedford's existing housing stock was built in the decade from 1950 to 1959. An additional 21.4% was built between 1960 and 1969, 13.4% was built between 1970 and 1979, and 15.2% was built between 1980 and 1988.

Year of Construction

	<i>Number</i>	<i>Percent</i>	<i>Cumulative Percent</i>
1939 or earlier	555	12.1	12.1
1940 – 1949	313	6.8	18.9
1950 – 1959	1,368	29.7	48.6
1960 – 1969	983	21.4	70.0
1970 – 1979	616	13.4	83.4
1980 – 1988	701	15.2	98.6
1989 – Mar 1990	66	1.4	100.0

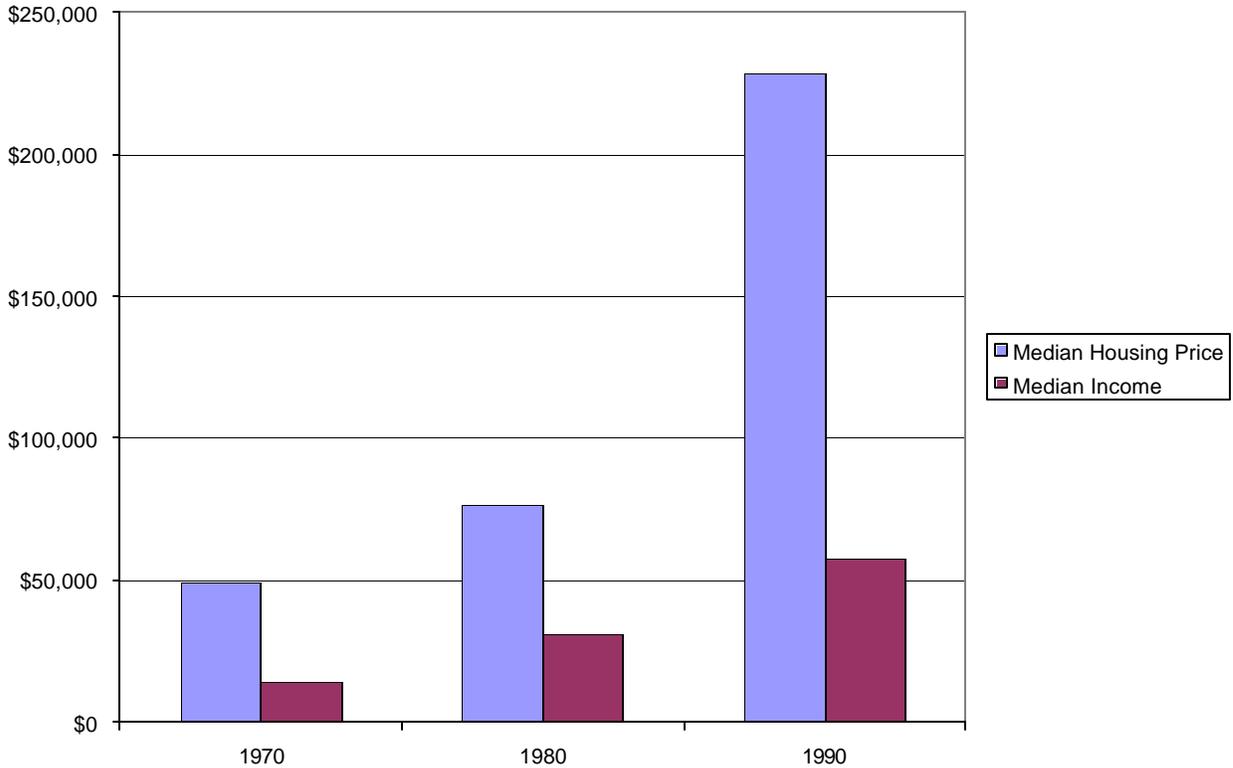
Number of Units by Year of Construction



There has been a growing gap between median family income and the cost of housing in Bedford as shown in the accompany table and graph. The median value of housing in Bedford increased sharply from \$49,500 to \$76,600 in 1980, an increase of \$27,100 or 54.7 percent. From 1980 to 1990, the median price of a house in Bedford rose at an astonishing rate from \$76,600 to \$228,2200, an increase of \$151,600 or 197.9 percent. For these same periods, median family income in Bedford rose from \$14,271 in 1970 to \$30,960 in 1980, an increase of \$16,689 or 117 percent. From 1980 to 1990, the median family income increased \$30,960 to \$57,561, an increase of 85.9 percent.

The ratio of median housing cost to median income (median housing cost/median income) was 3.47 in 1970. In 1980, this ratio fell to 2.47, which is considered affordable by common standards. In 1990, this ratio jumped to 3.96, an indication of the sharp rise in real estate prices.

Affordability of Housing



	<u>1970</u>	<u>1980</u>	<u>Change</u>	<u>1990</u>	<u>Change</u>
Median Housing Price	\$49,500	\$76,600	\$27,100 54.7%	\$228,100	\$151,500 197.8%
Median Income	\$14,271	\$30,960	\$16,689 116.9%	\$57,561	\$ 26,601 85.9%

Housing Trends since 1990

Since 1990 was the last year for which U.S. Census data was completely available, data from a number of other sources has been assembled to provide a perspective on housing trends in Bedford since 1990. This data includes home sales, median sales price, and the number of building permits issued for new construction.

Following declines in home sales in 1990 and 1991, there was a dramatic increase in 1992, with 188 sales recorded, a 50% increase over the previous year. In subsequent years, the number of home sales continued to increase at an even higher level.

From 1990 to 2000, the median sales price increased from \$209,000 in 1990 to \$325,000 in 2000, a dramatic increase of \$116,000 or 55 percent.

From 1990 to 1999, the number of building permits issued for the construction of new single-family homes reached a peak in 1994, when 93 building permits were issued for new units. The number of building permits issued remained at high levels for each of the following three years.

Home Sales

Source: Banker and Tradesman

	Home Sales	Percent Change
1990	149	-12.9
1991	125	-16.1
1992	188	50.4
1993	212	12.8
1994	244	15.1
1995	267	9.4
1996	261	- 2.2
1997	266	1.9
1998	215	-17.3
1999	224	4.2
2000	198	-11.6
2001	162	-18.1

Median Sales Price

Source: Banker and Tradesman

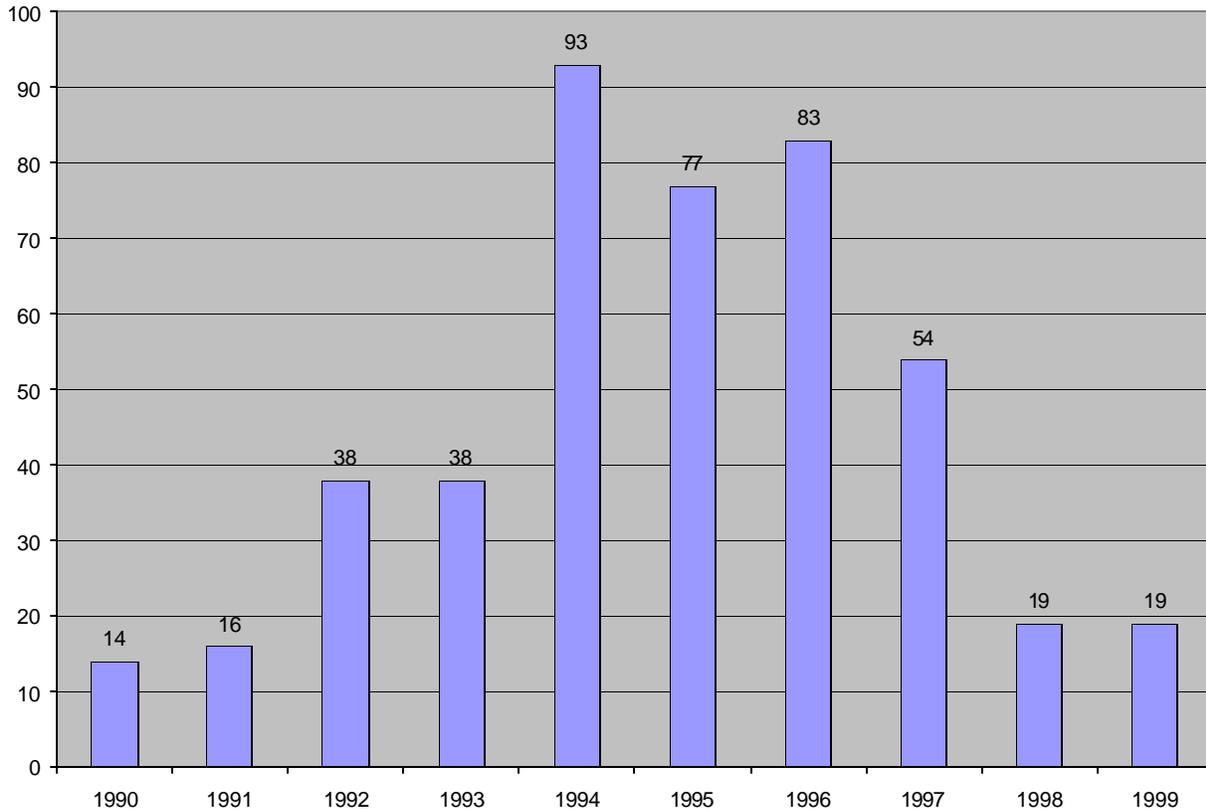
	Median Price	Percent Change
1990	\$209,000	-3.2
1991	201,000	-3.8
1992	217,000	8.0
1993	209,500	-3.5
1994	230,000	9.8
1995	245,425	6.7
1996	260,000	5.9
1997	270,000	3.8
1998	282,000	4.4
1999	325,000	15.2
2000	365,500	12.4
2001	401,700	9.9

Residential Building Permits

Source: Massachusetts Department of Housing and Community Development and Bedford Code Enforcement Department

New Construction	Residential
1990	14
1991	16
1992	38
1993	38
1994	93
1995	77
1996	83
1997	54
1998	19
1999	19
2000	24
2001	17

Number of Building Permits 1990-1999



Analysis of Housing Needs

Historical Perspective

Prior to completion of the 2001 Comprehensive Affordable Housing Plan, Bedford completed a 1986 Housing Plan, and a 1991 ad hoc group assessed housing needs.

The 1986 Bedford Housing Plan, prepared as a separate document following the completion of the 1985 Comprehensive Plan, identified a need for housing. It found "...a growing lack of fit between the existing housing stock and the needs of some of the residents and those who are employed in the town – a result of changing demographics, the changing lifestyle of the population, and the special requirements of some of the households." The changing age structure of the population – resulting in an increase in the median age of the population and, in particular, an increase in the middle and older age groups – was cited as "...a major factor affecting housing need." Substantial increases were also noted in both the number of households and the number of smaller households. The 1986 Housing Plan also recognized a regional housing shortage, and encouraged a regional approach to solutions.

The 1986 Housing Plan concluded that while "...the composition of households in the town has changed, the types of housing has not" and that there were "...a variety of housing needs that were not being adequately met." Among the groups with housing needs unmet by available housing were first-time home buyers, older segments of the population, lower and moderate income residents, physically disabled residents, Hanscom personnel, Middlesex Community College students, and others with a need for rental housing.

The 1991 Ad Hoc Planning Advisory Committee on Housing also concluded that "Bedford is a town in need of more diversity in its housing stock and that the greatest need is for housing that is more affordable."

Local Initiatives to Promote Affordable Housing in Bedford

Bedford has three appointed committees to address affordable housing issues. These include the Housing Partnership, the Affordable Housing Committee, and the Fair Housing Committee. The Bedford Housing Trust, a private non-profit corporation formed in 1994, provides the town with more flexibility in promoting the development of affordable housing through its ability to accept gifts of money or real estate, and to borrow or loan money.

Bedford has several areas of affordable and below market rate housing. Bedford Village, built in the 1970's, contains 24 affordable units and 48 moderate units. Shawsheen Ridge, built in 1987, has 6 units that are below market rate, but are not categorized as "affordable" under the state's definition, in addition to market rate units. Bedford Meadows, built between 1995 and 1997 under the LIPP program, provides 10 affordable housing units for first time buyers.

Zoning bylaws passed in recent years also enhance the town's ability to promote housing diversity.

Affordable Housing

The Department of Housing and Community Development (DHCD), formerly the Executive Office of Communities and Development (EOCD), maintains Massachusetts' official Subsidized Housing Inventory, as required in Massachusetts General Laws Chapter 40B, Section 20-23. Chapter 40B allows a housing agency or developer to obtain a single, comprehensive permit for the construction of subsidized low or moderate income housing. DHCD is responsible for maintaining the Subsidized Housing Inventory for purposes of determining whether the community has met the 10% goal. If a community in which less than 10% of its housing stock is low or moderate-income housing denies a comprehensive permit application, or imposes conditions that make a project uneconomic, the developer may appeal to the state Housing Appeals Committee.

The following data is from the latest DHCD Subsidized Housing Inventory through October 1, 2001 for Bedford:

Name/ Address	Funding Agency/ Program	Total Units	Ch. 40B Units	Percent Subsidized
Bedford Village Dunster Road	MHFA 13A	96	96	2.09
Carlisle Road Route 225	DHCD LIPP	40	10	0.22
Chapter 167-1 20 Railroad Avenue	DHCD 167	8	8	0.17
Chapter 200-1 Elm Street	DHCD 200	12	12	0.26
Chapter 667-2 Ashby Place	DHCD 667	80	80	1.71
Old Billerica 455 Old Billerica Road	DHCD HIF	4	4	0.09
Total		240	210	4.48

The 2000 U.S. Census shows an increase in year round housing units to 4,692, which decreased the percent of subsidized units to 4.48 percent from the 1990 figure of 4.58 percent.

Future Housing Needs

There are many striking similarities in the 1986 Housing Plan's description of Bedford's housing supply and housing needs and the characteristics of Bedford's housing today.

As noted in the 1986 Bedford Housing Plan, there were 206 units of low-moderate income subsidized housing in Bedford, which represented 5.4 percent of the total housing stock. The 1986 Housing Plan also noted that newly constructed housing in Bedford tended to be larger than existing housing and consisted mainly of single-family detached residences. By 1985, housing in Bedford had become less affordable, requiring an income of \$57,000 to \$65,000 to purchase an average priced home in Bedford and rental units were generally less available.

The total number of units today is 210, which represents 4.48 percent of Bedford's housing stock, a decline from 5.4 percent reported in the 1986 Housing Plan. This trend is worsening, since the number of affordable housing units only increased by four, but the total number of housing units in Bedford has grown more rapidly. Housing needs in Bedford remain similar to those described in the 1986 Housing Plan with the need for more affordable housing, rental housing and housing for the older segment of the population.

For greater detail on affordable housing and the intended future direction for affordable housing in Bedford including a detailed action plan refer to the recent plan contracted by the Housing Partnership: "Comprehensive Affordable Housing Plan Town of Bedford" prepared by Karen Sunnarborg consultant, January 17, 2002.

Proposals and Recommendations

3-1. Pass Active Seniors Housing Provision

Draft a Zoning bylaw to encourage the construction of housing for Bedford's "active seniors", those in the 55+ age group. This housing would include different price ranges and fewer bedrooms per unit than typical units. This proposal would serve a segment of the population that is not adequately served by Bedford's housing supply. In addition, this proposal would result in a positive fiscal benefit to the town since very few school age children would reside in this housing. To provide an incentive for developers, a density bonus would be allowed for this type of housing with a special permit. This increase in density would be offset by the fact that seniors typically make fewer automobile trips generating less traffic and at off-peak hours.

3-2. Encourage Scattered Site Affordable Housing Development Through the Bedford Housing Trust

Use existing Bedford Housing Trust financing and town-owned land development vehicles to increase the number of scattered site affordable housing units in Bedford.

3-3. Participate in the State's Soft Second Loan Program

Provide first-time homebuyers in Bedford with the affordable mortgage financing option of the state's Soft Second Loan Program.

3-4. Undertake a Comprehensive Review of and Revise the Zoning Bylaw to Promote Affordable Housing

Undertake a comprehensive review of the Zoning Bylaw and explore changes (in addition to an “active seniors” provision) that would help promote affordable housing, in support of the recommendations in this report.

3-5. Protect the Long-term Affordability of Expiring Use Projects

Monitor the status of the Bedford Village project and intervene if necessary to maintain the long-term affordability and habitability of almost 100 units of housing.

3-6. Encourage Private Sector Construction of Appropriate Scale, Scattered-Site Affordable and Market Rate Rental Housing

Reinforce efforts to leverage funding and other forms of assistance under state programs, such as the LIP program, for construction of rental housing units, both affordable and market rate.

3-7. Encourage the Use of the Existing Accessory Apartment Bylaw

Investigate why town residents are not making more frequent use of the Accessory Apartment Bylaw. Take steps to raise awareness of the bylaw and encourage people to take advantage of it, such as helping them secure financing as a means to increase the number of rental units in Bedford.

3-8. Address “Mansionization” of Bedford

Recognize the increasing mansionization of Bedford as leading to an increase in housing costs. Follow the lead of other towns in the Boston area by developing regulations to require a special permit for construction of houses above a prescribed square footage that involves a teardown of an existing house.

Chapter 4

ECONOMIC DEVELOPMENT

Introduction	1
Overview	2
Economic Base	2
Labor Resources	
Employment Resources	
Journey to Work	
Community Economic Findings	7
Growth Within Industrial And Commercial Areas	
Employment Center Mixed Use	
Pedestrian Friendly Shopping Environment	
Town Green Business Area	
Neighborhood Convenience Services	
Tourism Potential	
Organization for Economic Development	
Proposals and Recommendations	9

List of Figures

Figure 4-1	Employment Opportunities.....	8A
------------	-------------------------------	----

Introduction

The Economic Development chapter deals with how the town can best take advantage of current economic conditions and potential future conditions to enhance the economic foundation of the town. One of the basic precepts in the Comprehensive Plan is to enhance the town as a place to live while improving its economic well being. This means controlling potential adverse impacts by actively prescribing how the town should develop and under what conditions. It means being active and not waiting to respond to the inevitable inappropriate proposal. The overview addresses why such sustainable development is the prudent course to take.

Overview

Bedford has several locational advantages for commercial uses, which increase the probability of future commercial development. Despite this fact, there is no guarantee that only the most socially beneficial types of development, producing the greatest number of jobs and tax revenue with minimal visual, environmental and traffic impacts, will locate in the town. To reap maximum economic and environmental benefits from the development of its remaining commercial land, Bedford must cautiously welcome, support and guide the location of desirable uses into the town.

This objective can be achieved through an attentive policy of short and long-term economic development. This would encompass careful review of the results of the recently completed build-out analysis to determine the type and level of commercial and industrial development that would benefit the town, and ascertain (to the extent possible) the practical growth limits of the town. These limits would recognize quality-of-life issues such as excessive traffic volumes in the face of limited public transport options, and remain cognizant of long-term infrastructure and economic constraints such as water, sewer, road and drainage limitations. This review should assist in determining planning paths that will help mitigate traffic concerns and foster land development patterns that will maintain and improve - rather than degrade - Bedford's "small town character". This policy would promote the careful construction of office, research, light assembly, and to a lesser extent retail space as an alternative to unregulated development as a means of boosting Bedford's economy, employing its residents and increasing town revenues.

Economic Base

This section presents an analysis of Bedford's economic base. The following employment data looks at overall town employment, the labor resources, the growth or decline of various job sectors, and the commuting patterns of the journey to work.

Labor Resources

The two tables below look at the basic characteristics of the towns resident labor force. The first table records what sector of the economy in which people work, and the second table identifies the types of occupations or expertise residents have. Over forty percent of residents are employed in the services sector. Roughly twenty percent of the working population is in the manufacturing sector and fifteen percent in wholesale and retail trade.

Looking at the types of occupations, three-fourths of the residents are white-collar workers in managerial, professional, technical, sales or administrative support. Only ten percent are in service occupations, and another ten percent in the blue-collar occupations of precision production, operators, fabricators and laborers.

Industry Groups of Residents (Employed persons 16 years and over)

	<u>Residents</u>	<u>Percent</u>
Agriculture	108	1.5
Mining	0	0.0
Construction	321	4.3
Manufacturing	1,443	19.4
Transportation & Communication	215	2.9
Wholesale & Retail Trade	1,108	14.9
Finance, Insurance & Real Estate	460	6.2
Government	621	8.3
Services	<u>3,164</u>	<u>42.5</u>
Total	7,440	100.0

Source: 1990 US Census.

Occupation (Employed persons 16 years and over)

	<u>Persons</u>	<u>Percent</u>
Managerial & professional specialty	3,137	42.2
Technical, sales, & administrative support	2,592	34.8
Service	851	11.4
Farming, forestry, & fishing	69	0.9
Precision production, craft, and repair	452	6.1
Operators, fabricators, and laborers	<u>339</u>	<u>4.6</u>
Totals	7,440	100.0

Source: 1990 US Census.

Employment Resources

This section looks at Bedford job categories. The first table shows what sector of the economy the jobs are located. In 1999, there were about one third of the jobs in the services sector, twenty-five percent of the jobs in manufacturing, and twenty percent in government. Wholesale and retail trade had twelve percent of the jobs in town. A look at retail sales shows a concentration of thirty-five percent in the retail group of eating and drinking places. The largest employer in town is Raytheon Corporation with the US Air Force and Mitre Corporation the next largest employers.

Average Annual Employment by Place of Work

	1989	1994	1999
Total Annual Payroll	\$899,454,989	\$744,323,521	\$1,125,288,530
Average Annual Wage	\$35,931	\$42,465	\$56,015
Number of Establishments	510	517	610
Total Employment	25,033	17,528	20,089
Agriculture Forestry Fishing	50	36	28
Government	5,041	4,766	4,203
Construction	301	186	261
Manufacturing	10,526	4,092	5,206
Transportation, Communication & Public Utilities	151	218	634
Retail & Wholesale Trade	2,312	2,377	2,427
Finance, Insurance & Real Estate	181	152	262
Services	6,471	5,701	7,068

Source: Commonwealth of Massachusetts, Division of Employment and Training (ES-202 Series)

Largest Employers: 2000 Estimated Employment at Large Work Sites in Bedford (November 2000)

Raytheon Missile Systems	3500
US Air Force	2689
Mitre Corp	2000
Veterans Administration Hospital	1400
Milipore Corp	1000
Progress Software Corp	600
Medisense	450
Sungard Global Systems	407
Lasertron/Oak Industries	340
Iris Graphics	277

Source: Central Transportation Planning Staff, MAGIC Subregional Area Study

Retail Trade

NAICS Code	Industry Description	Number of Establishments	Number of paid employees for the March 12, 1997 pay period	Sales (\$1000)	Annual Payroll (\$1000)
44-45	Retail Trade	49	951	164469	20266
441	Motor Vehicle & parts dealers	2	20 - 99	D	D
442	Furniture & home furnishing stores	1	20 - 99	D	D
443	Electronics & appliance stores	2	0 - 19	D	D
444	Building material & garden equipment & supplies dealers	1	20 - 99	D	D
445	Food & beverage stores	7	396	58154	8171
446	Health & personal care stores	4	20 - 99	D	D
447	Gasoline stations	6	41	13214	567
448	Clothing & clothing accessories stores	7	144	23608	2075
451	Sporting goods, hobby, book & music stores	6	33	3637	480
453	Miscellaneous store retailers	9	36	1563	358
454	Nonstore retailers (mail order houses)	4	100 - 249	D	D

Source: U.S. Bureau of the Census, 1997 Economic Census, Statistics by Economic sector

D: Withheld to avoid disclosing data of individual companies; data are included in higher level totals

Accommodation & Foodservices

NAICS Code	Industry Description	Number of Establishments	Number of paid employees for the March 12, 1997 pay period	Sales (\$1000)	Annual Payroll (\$1000)
72	Accommodation & foodservices	43*	760	35545	10576

* Accommodation (4) and Foodservices (39)

Source: U.S. Bureau of the Census, 1997 Economic Census, Statistics by Economic Sector

Other Services (except public administration)

NAICS Code	Industry Description	Number of Establishments	Number of paid employees for the March 12, 1997 pay period	Receipts (\$1000)	Annual Payroll (\$1000)
81	Other services	29	152	7962	2485
811	Automotive repair & maintenance	13	101	5585	1770
812	Personal & laundry services	16	51	2077	715

Source: U.S. Bureau of the Census, 1997 Economic Census, Statistics by Economic Sector

Journey to Work

The data below shows where residents of Bedford work, how they get to work, and how long it takes them to get to work. One-third of the resident work force works in Bedford. The next table shows that 15% travel to Boston, the central city in Bedford's metropolitan statistical area (MSA). Of the 89% who drove to work, 89% drove alone. This is endemic to a suburban community where busy schedules and scattered destination points prevail. There is little incentive to carpool. Three-fourths of Bedford's residents got to work in less than half an hour; another 19% took up to one hour and 3% took greater than one hour. Only 3% worked at home.

Place of Work (Workers 16 years and over)

	<u>Persons</u>	<u>Percent</u>
Worked in Bedford	2,728	31
Worked outside Bedford	<u>6,000</u>	<u>69</u>
Total	8,728	100

Living in an MSA/PMSA (Metro. Statistical Area / Primary Metro. Statistical Area):

Worked in MSA/PMSA of residence:		
Central city	1,292	15
Remainder of this MSA/PMSA	6,623	76
Worked outside MSA/PMSA of residence:		
Worked in a different MSA/PMSA:		
Central city	182	2
Remainder of different MSA/PMSA	567	6
Worked outside any MSA/PMSA	<u>64</u>	<u>1</u>
Total	8,728	100

Means of Transportation to Work (Workers 16 and over)

	<u>Persons</u>	<u>Percent</u>
Car, truck, or van:		
Drove alone	6,910	89
Carpooled	<u>860</u>	<u>11</u>
Subtotal	7,770	100
Public transportation:		
Bus or trolley bus	74	
Streetcar or trolley car	0	
Subway or elevated	83	
Railroad	0	
Ferryboat	0	
Taxicab	6	
Motorcycle	18	
Bicycle	89	
Walked	389	
Other means	18	
Worked at home	<u>281</u>	
Total	8,728	

Source: 1990 US Census.

Travel Time to Work (Workers 16 years and over)		
	<u>Persons</u>	<u>Percent</u>
Less than 5 minutes	422	
5 to 9 minutes	1,965	
10 to 14 minutes	1,699	
15 to 19 minutes	1,215	
20 to 24 minutes	904	
25 to 29 minutes	<u>351</u>	
Subtotal - less than 30 minutes	6,556	75
30 to 34 minutes	777	
35 to 39 minutes	161	
40 to 44 minutes	272	
45 to 59 minutes	<u>421</u>	
Subtotal - 30 to 59 minutes	1,631	19
60 to 89 minutes	199	
90 or more minutes	<u>61</u>	
Subtotal - greater than one hour	260	3
Worked at home	<u>281</u>	<u>3</u>
Total	8,728	100

Source: 1990 US Census.

Community Economic Findings

Growth Within Industrial And Commercial Areas

There is substantial capacity for growth within industrial and commercial areas. Existing commercial space in Town is 6.36 million square feet and existing industrial space is 1.03 million square feet. The capacity of land zoned for additional commercial and industrial uses with estimated wetland subtracted is up to 3.02 million additional square feet of commercial space and up to 1.44 million added square feet of industrial space. Present land prices, market conditions, and functional requirements do not currently support development at the densities indicated by the calculations. The time frame when it might be feasible, if ever, cannot be determined.

The most promising opportunities for the creation (and sustaining, for that matter) of low and moderate income job opportunities in Bedford rest on two elements: the Veteran's Administration Hospital and our existing retail sector. With respect to both, Bedford's present day actions and forward looking policies should support their continued presence and vitality. Where possible, expansion of retail of the appropriate kinds, character and location should be encouraged.

Creation of significant future employment opportunities across the entire spectrum of incomes will require two things: development or redevelopment of Bedford's commercially or industrially zoned land and improved employee access to these developments. The maximum extent of possible build-out of Bedford's Commercial/Industrial land was shown on the table provided at the end of Chapter 2. Figure 4-1 depicts this data, with the filtering caveat that the most likely areas for redevelopment are those on which the owner/developer of appropriately zoned land can realize a 50% or larger increase in commercial or industrial floor area, thus making the investment in redevelopment feasible. Such development/redevelopment could result in approximately 2,800,000 sq.ft. of additional commercial space and 900,000 sq.ft. of additional industrial space. Based on a "trends extended" ratio of current jobs to current space, this amount of development and redevelopment could accommodate a 50% increase in total employment within Bedford, or a total of approximately 10,000 new jobs.

To realistically achieve anywhere near this level of job growth, and especially of low and moderate wage jobs, major improvements are required to the ability of employees to get to and from Bedford's commercial/industrial areas. It is the intent of the Bedford Planning Board to use the assistance available through EO 418 to analyze the potential for and to plan a system of shuttles and other steps to better interface with and make use of existing transit within and adjacent to Bedford.

Employment Center Mixed Use

Due to the present structure of the employment centers, there are virtually no services within these sectors to meet the daily needs of employees. This results in the need for trips outside those areas, in many cases for some distance through residential areas.

Pedestrian Friendly Shopping Environment

The Great Road shopping Center was enormously improved from an urban and public perspective during its most recent renovation and addition. The positive features included buildings out near the street, landscaping, and well-defined entry points. These types of improvements are needed for all commercial uses along the Great Road. Additional improvements can include appropriately sized sidewalks along both sides of the street, crosswalks, attention to signage, and street trees.

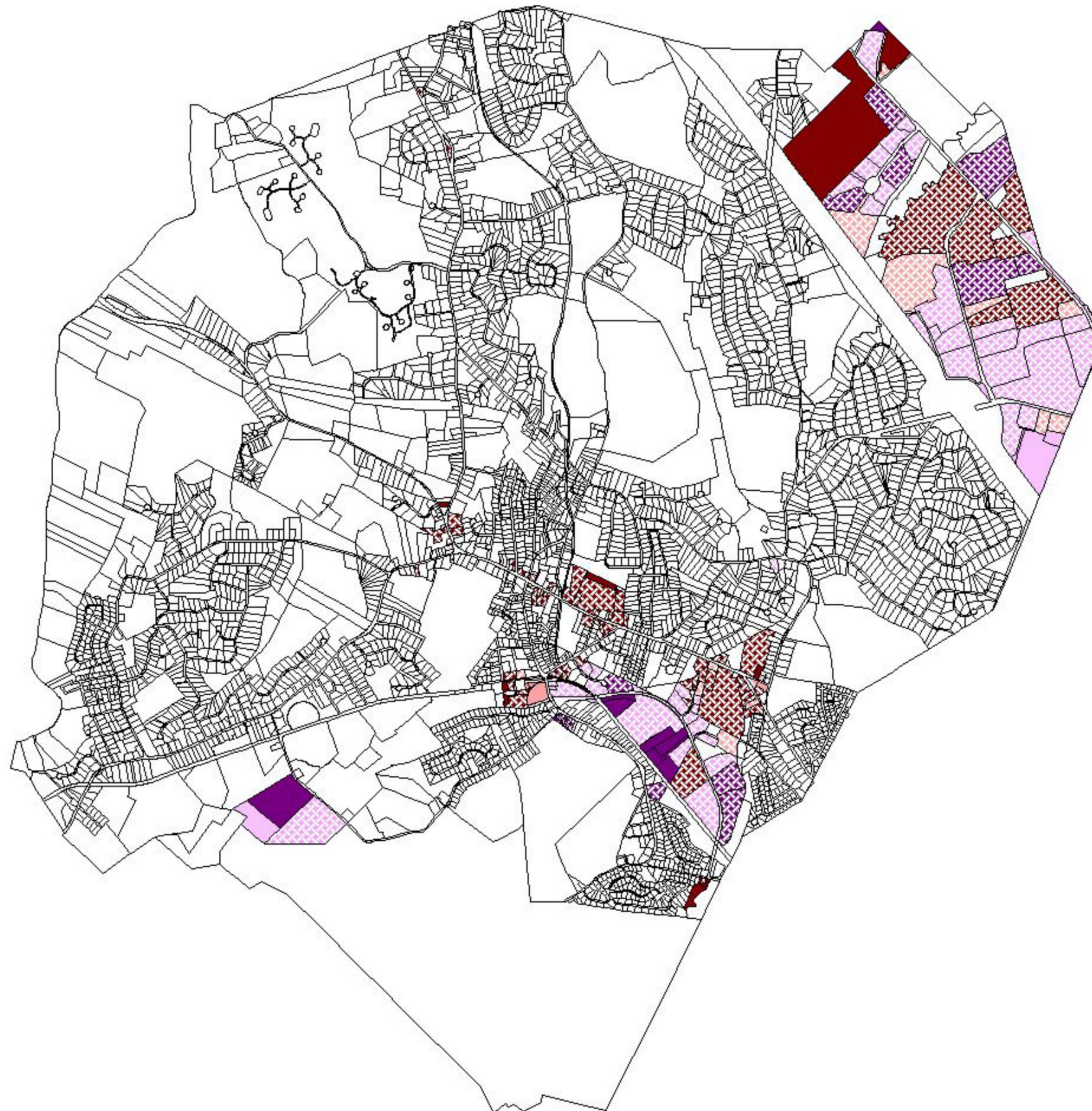
The North Road business area seems to be ripe for redevelopment. This area is envisioned to have the potential of developing into a special type of pedestrian oriented convenience services area built around specialty foods, small offices and everyday needs.

Town Green Business Area

The Town Green business area is in the heart of the most concentrated area of historic structures in Town. As such, it not only needs to serve the predominately residential area, but also be sympathetic to the character of its historic surroundings. The commercial building opposite the

TOWN OF BEDFORD COMPREHENSIVE PLAN

Figure 4-1 Employment Opportunities



- Parcel
- Undeveloped, Undevelopable Land - Commercial
 - Undeveloped, Undevelopable Land - Industrial
 - Vacant, Developable Land - Commercial
 - Vacant, Developable Land - Industrial
 - Developed Land that Can be Redeveloped - Commercial
 - Developed Land that can be Redeveloped - Industrial
 - Developed Land that can not be Redeveloped - Commercial
 - Developed Land that can not be Redeveloped - Industrial

N



2500 0 2500 Feet

Produced by the
Bedford Planning Board
October 2002

The information on this map is for planning purposes only.
It is not adequate for legal boundary definition or regulatory interpretation.

Town Green does not contribute to enhancing the character of the space defined by surrounding buildings such as that exemplified by the First Parish Unitarian Universalist Church.

Neighborhood Convenience Services

There are a number of residential areas in Town that do not have easy access to necessary daily convenience services. In many cases this means traveling long distances to pick up a loaf of bread or a bottle of milk. In Bedford, this usually means a trip to or along the Great Road adding to its traffic. Residents find these trips frustrating and need to plan them for strategic lower traffic times of the day.

The road system in Bedford can be characterized as a “wheel hub and spoke” configuration. Traveling outside one’s immediate neighborhood frequently means a trip through the center of Town, along or across the Great Road. There are very few interconnecting streets between these radial roads such as Page Road.

Tourism Potential

Bedford has a rich history in its people, events and remaining architectural heritage. The Town has the potential to further capitalize on this heritage to supplement its economic base and to increase its pride of being citizens in the Town.

Organization for Economic Development

Bedford is currently in a favorable position relative to the health of its industry and commercial enterprises. Recent years have seen an upgrading in many of the buildings in its business areas through remodeling, renovation and redevelopment. Vacancies are low and the tax base is robust. However, it hasn’t always been that way. The Town just has to remember the conditions at the turn of the 1990’s. At that time vacancies were rising, businesses were closing down, and others were moving out to consolidate with operations in other parts of the country. This generated a fiscal crisis of major proportions in the Town requiring hard choices and sacrifice.

Proposals and Recommendations

4-1. Contain Industrial and Commercial Uses

Contain industrial and commercial activities essentially within the boundaries defined by existing industrial and commercial activities:

Industrial:

- Middlesex Turnpike Sector
- Wiggins to Railroad Avenue Sector
- Hartwell Ave.

Commercial:

- Great Road

-
- Town Green
 - North Road

4-2. Control Capacity of Uses by Floor Area Ratio (FAR) Adjustment

Control the capacity for industrial and commercial area redevelopment by adjusting the FAR, especially south of Rte. 3.

4-3 Encourage Mixed Use

Change the zoning bylaw to permit and encourage mixed retail, services and residential use within employment centers in order to provide daily needs for convenience services. These include for example places to obtain coffee and rolls in the morning, lunch at noon, laundry pick-up, ATM, and that loaf of bread and bottle of milk on the way home.

4-4. Create Pedestrian Friendly Shopping Environment

To achieve easier and safer public access to commercial businesses and to develop a more pedestrian friendly shopping environment, it is recommended that there be a maximum setback of twenty (20) feet in the General Business and Limited Business districts and that motorized vehicle parking be prohibited in front of the building setback line. Additional pedestrian space and sidewalk cafes would be encouraged in the setback area.

4-5. Design Guidelines for Commercial Uses

Develop design guidelines for the review of commercial proposals to meet the high functional, safety and aesthetic public interests of the Town and make readily available to the business and real estate interests.

4-6. Redevelop 68-88 Great Road Block (Sheldon Block)

The Town should encourage an appropriately scaled and scoped redevelopment of the block opposite the First Parish Unitarian Universalist Church on the north side of Great Road. A previous proposal for the property in 1989 is judged to have been in the right direction. The mass of the building needs to be substantial enough to sit opposite the church, yet sympathetic to the residential structures on either side. In addition, colonial design features are appropriate to reflect its historic context. Uses might include an outdoor café, convenience food mart, ATM, specialty shops, bagel shop, deli, restaurant, and offices and/or residences on upper levels.

4-7. Establish Neighborhood Convenience Services

Establish small-scale neighborhood convenience retail centers at strategic locations in the Town within half a mile to a mile of most neighborhoods. Accommodate small-scale building that could offer such services as a food mart, deli, coffee shop and dry cleaners. Explore whether the existing zone district of limited business is satisfactory or should a special zone district be established for neighborhood convenience services centers.

Potential new centers include:

- VA Hospital
- Burlington Road
- Middlesex Turnpike

-
- South Road
 - Hartwell Road

Reinforced Centers include:

- Town Green
- North Road

4-8. Establish Tourism Center

Establish a center for tourism that could also function as a museum and center for Town history. Perhaps a small theater classroom could be incorporated for lectures, slide shows and videos. Building on the seasonal house tour, the Tourism Center could function as the reception center for that event as well as other functions. The Historical Society may desire to have its offices and some historic artifacts, restoration workspace and storage in the building. Community art exhibits and other special events could probably also be accommodated. Other related activities could include more complete marking of historic resources, guide maps, and pamphlets written by local citizens on various aspects of Town history and its growth and development.

4-9. Facilitate Government Relations with Businesses

Provide on-going communication with business owners and tenants regarding the kind of development the town welcomes that enhance its quality of life. Provide “Ombudsman” services, which is a single point of contact in the Town for business leaders to make contact with Town government for solution of their problems or need to interact with the Town.

Chapter 5
NATURAL AND CULTURAL RESOURCES

Introduction	1
Natural Resources	2
Resource Acquisition and Protection	2
Resource Management.....	3
Award Designations for Resource Protection and Management	4
Developing a Network of Trails and Sidewalks	5
Cultural and Historic Resources	5
Cultural Facilities	5
Cultural and Historic Organizations, Opportunities and Events.....	5
Historic Buildings and Sites	8
Bedford History in Print.....	10
Listing of Significant Historic Buildings, Sites and Objects	11
Proposals and Recommendations	13

Introduction

Bedford residents place a very high value on maintaining “small-town character” and the natural, historical and cultural assets that support it, and they have been active and creative in pursuit of this goal. For example, Bedford became the first town in the Commonwealth to participate in the Community Preservation Act after Town Meeting approved a 3 percent surcharge on property taxes (exempting the first \$100,000 of property value), to be devoted to preserving open space and ensuring historic preservation (as well as creating affordable housing and promoting recreation). Community preservation funds approved by Town Meeting have already proven critical to preserving Bedford’s natural and cultural resources. In addition, they have voted substantial financial resources for preserving open space and historic sites. The Town recently pursued and gained Tree City status and began a Heritage Tree program.

The Bedford Comprehensive Plan uses the Open Space and Recreation Plan, 1997-2002, which evaluates and documents Bedford’s natural resources, with some reference to its historical and cultural assets, as the basis for comprehensive planning when appropriate. This plan will soon be supplanted by the OS&R Update, 2003-2007, now nearing completion.

Natural Resources

Bedford enjoys a variety of Open Space resources distributed throughout town. This includes Town-owned properties such as Fawn Lake, the Hartwell Town Forest, Wilderness Park, Elm Brook Conservation Area, and a variety of smaller conservation areas. Bedford also enjoys many scenic vistas, farms, and open fields owned by other parties. However, most of these spaces are not protected in any permanent manner and may fall victim to development pressures at any time.

Section IV of the “Town of Bedford Open Space and Recreation Plan 1997-2002” contains a detailed “Environmental Inventory and Analysis” of Bedford, including a wealth of useful maps created by the DPW using the new GIS system.

In addition to maintaining small town character, Bedford’s goals for natural resources include that the Town:

- ❑ continue to purchase open space, especially large tracts of land, for a variety of uses;
- ❑ protect environmentally sensitive properties, including valuable water resources and unique wildlife habitat areas, especially aquifer recharge areas that are or could be used as a water supply for the Town;
- ❑ improve how it maintains and manages the resources it already owns to enhance their various potential uses
- ❑ develop and improve a network of trails and sidewalks connecting neighborhoods, public facilities, conservation and recreation lands and commercial areas.

Resource Acquisition and Protection

Bedford has been both proactive and creative in pursuing acquisition of land, using a variety of means. Many parcels have been generously donated to the Town for use as open space and conservation. The Town has purchased others with funds voted by Town Meeting or with Community Preservation monies. Two parcels were purchased with special funds set aside by the legislature as part of the Route 3 widening funding project, specifically included for compensatory purchase of open space within the seven affected communities, to be distributed according to an assessment of the merits of grant applications for the purpose.

The Conservation Commission and its Land Acquisition Sub-Committee have identified a list of undeveloped lots in Bedford that might be suitable for purchase as open space. These lots have been categorized in terms of size, resource areas and potential uses. In May 2001 the Land Acquisition Sub-Committee sent letters to the owners of these properties informing them that the Town may have an interest in purchasing the property. Several of the parcels were successfully acquired with CPA and Route 3 widening project funds.

-
- ❑ The Altmann property is a 20 acre parcel of land off Dudley Road that abuts the Great Meadows Wildlife Refuge and Huckins Farm. It is adjacent to the historic Two Brothers' Rocks. Acquisition and conservation of this property will assure a good buffer and improved trail access to the Two Brothers' Rocks. The property has a large amount of upland and contains a wide diversity of wildlife habitat, including a certified vernal pool, riverfront area, old stonewalls, and cart paths. In this location, the width of protected land along the Concord River is extremely narrow. Development of this parcel would be especially undesirable, since it would be the only development in Bedford visible from the river and the Two Brothers' Rocks. The property was acquired with \$300,000 of CPA and \$535,000 of Route 3 widening project funds.
 - ❑ The Hughes property is a 21.65-acre parcel off of Harvard Drive. Acquisition and conservation of this parcel will connect two other pieces of conservation land (Brown/Page and Redmond-Anderson). Most of this parcel is wetlands, but there is a thin strip of uplands that might be able to provide a trail from Harvard Drive to Old Causeway. Together with the adjacent conservation land, this parcel provides a varied wildlife habitat extending from the Concord River to Carlisle Road. This property was purchased through a grant from the Route 3 widening project to a private conservation group, Sudbury Valley Trustees, and then given to the town.
 - ❑ The Valente property at 133 and 135A Shawsheen Road, a 16-acre parcel, 4 acres of which is critical to protecting the drinking water recharge area of the last active municipal wells in Bedford and lessening dependence on MWRA water supplies. \$150,000 of CPA funds were used for this purchase.

Resource Management

Fawn Lake is the most visible and valuable conservation area in Bedford and owes its popularity to the park-like setting with trails around a 12-acre pond, 2-acre lawn and 25-acre forest purchased in 1979 with State Self-Help funding. Its interesting past as a mineral springs health resort and early pharmaceutical center reminds the visitor that the lake has been a scenic and restorative attraction for over a century. Traces of the old mineral springs remain, but present use is more likely to be fishing, ice-skating or strolling around the shore. Native vegetation predominates, and the shore is one of the best places in Bedford to see mountain laurel.

Over the last few decades, Fawn Lake has begun to fill in with decaying plant matter. This has been the subject of extensive study, with a final program and schedule still to be developed. The preservation project has been phased to accommodate the magnitude of both the costs and permitting effort that will ultimately be involved if the town elects to proceed with the full project. The 1998 Spring Annual Town Meeting approved \$50,000 towards the costs of hiring a consultant who will finish the engineering and design work, prepare the permit applications, and conduct meetings with state and federal regulators and Bedford officials and residents.

In July 2001 the RFQ for design and permitting consultant was issued and in the fall a consultant firm was contracted to help the Town with the tasks. GeoSyntec is working on the detailed environmental and cost alternatives analysis and having public meetings to gather input from the

community in order to enable the community to decide on the best route to pursue in order to dredge the lake and then develop recreation components.

Two small aspects of the overall undertaking are recreational use-related and can be completed prior to completion of the entire lake preservation efforts. The Recreation Commission would like to contribute to the early-on enhancement of Fawn Lake in two respects: (1) the construction of a portable canoe launch ramp, and (2) the construction of disabled-accessible trails around the perimeter of the entire lake, with the estimated cost for these two improvements being \$100,000, 90% of that being for trail construction.

The Jenks Way Arboretum is a remarkable resource virtually unknown to Bedford residents. The Bedford Arbor Resource Committee (BARC) is seeking to preserve it and to add interpretive signs about its history and natural features. During Colonial times, the two rows of stones between the circular road in the front High School parking lot, were a “cow run” back to the Fitch Farm barn. The Fitch Farm and Tavern were held in that family for many generations until Mary Rand Fitch married a Boston Minister, John Henry Jenks. One of their sons, Charles W. Jenks, was the first Bedford Tree Warden from 1898 until 1909. Through his association with Harvard College, where he graduated in 1871, and the Arnold Arboretum, he obtained several unique specimen trees which he planted on his property. After his death, the specimen trees were rediscovered by a group of interested residents, including Mimi Adler, and transplanted to their present location between the cow run, creating an arboretum. Jenks also donated the land on which now sit the Middle and High Schools, the Town Hall, the Police Station, the Public Library, the playing fields and playgrounds.

With increasing development, the interaction between people and wildlife becomes more common, often creating difficulties for Towns to manage. For example, beavers cause flooding in residential neighborhoods when they dam up streams. The Conservation Commission and DPW are attempting to devise a solution consistent with environmental law.

Award Designations for Resource Protection and Management

National Wild and Scenic River

Bedford participated in the long, arduous political process begun by then Congressman Chester A. Atkins that resulted in having portions of the Concord River, including all those in Bedford, designated as part of the National Wild and Scenic River system, thereby affording it enhanced protection from development.

Tree City USA

In 2001, for the first time, Bedford received national recognition as a Tree City USA through the combined efforts of the DPW, the Tree Warden and the Bedford Arbor Resources Committee (BARC). To maintain Tree City USA status, Bedford must show progress in fulfilling four standards established under the program: observe Arbor Day each year, create a tree committee or tree department, pass a tree ordinance, and develop and implement a comprehensive community street tree/forest management program. Bedford has fulfilled only the first

requirement. The Bedford Arbor Resources Committee is an ad hoc, not a standing, town committee. The National Arbor Day Foundation, which bestows the Tree City award, challenges each recipient to raise its standards and enhance community education regarding tree care. The state also expects the town to begin to implement a self-supporting tree-management plan. Tree City USA status is a pre-requisite to obtaining several monetary grants from the Mass. Department of Environmental Management, including the Mass Releaf, Heritage Tree, and Planning & Education grants. Bedford has already obtained or is in the process of seeking each of these grants.

Developing a Network of Trails and Sidewalks

Bedford has been developing an interconnected multi-use trail system in order to enhance use of the Town's natural, cultural and recreational resources by its residents, provide corridors for wildlife movement and protect natural resources. The Town continues to build new sidewalks and is pursuing policies that encourage bicycle use. It targets for purchase land that abuts conservation land already owned by the Town. Other improvements to the network would include developing more trails, marking trails more clearly, creating detailed maps of conservation lands that include the trails, and pursuing a more active public education program.

Cultural and Historic Resources

Considering that Bedford is a suburban town just outside Route 128 (I-95) that has relatively easy access to the cultural resources of the Boston metropolitan area, it has a remarkable wealth of cultural opportunities generated locally.

Cultural Facilities

The primary cultural facilities are Middlesex Community College and the Bedford Public Library. Old Town Hall is being considered as the home for a new Performing Arts Facility

The ultimate use of the Old Town Hall building has not been settled. All agree, however, that the top floor hall holds the potential for public gatherings. Encouraging music training and performance has not been a traditional activity of the Bedford Recreation Department nor for any other group outside of the schools. The Recreation Commission proposes to expand its programming to include the presentation of live music performances in the Old Town Hall. The Stage area in the hall room is too small to support community theatrical presentations or dance performances. But, with appropriate lighting, sound equipment, baffling and seating, it should be optimal for concerts. The estimated cost to equip the hall room for this purpose is approximately \$9,000.

Cultural and Historic Organizations, Opportunities and Events

Cultural and historic opportunities are offered by Middlesex Community College, The Bedford Free Public Library, the Friends of the Bedford Library, Friends of the Bedford Flag, Art

Steering Committee of the Bedford Free Public Library, the Bedford Cultural Council, the Public Ceremonies Committee, the Patriotic Holiday Committee, the Bedford Minuteman Company, Historic Preservation Committee, the Historical Commission, Bedford Historical Society, Friends of the Job Lane House, Friends of Depot Park, Bedford Arbor Resources Commission (BARC), Bedford Adult Education, Bedford Recreation Commission, The Bedford Center for the Arts, The Bedford Arts and Crafts Society, Artlinks, the Bedford Garden Club, the Rotary Club, the Bedford Chamber of Commerce, among others.

Middlesex Community College has an extensive community education program and hosts many events that are free and open to the public. The facilities at Middlesex are frequently used by community groups on a space available basis.

The Bedford Free Public Library is the community's resource for information, lifelong learning, and creative use of leisure time. Storytimes, programs, summer reading activities, and professional children's librarians are available to the youngest members of the community, from newborns through sixth graders, to encourage the development of reading. Book discussions and other cultural programming, often in collaboration with local organizations, are provided year-round for teenagers and adults in the community.

The Library houses a collection of just under 100,000 items, which includes books and serials, compact discs, audio books, videos, CD-ROMs, DVDs, and games. The Library is a member of the Minuteman Library Network, a consortium of over 40 area libraries that share a common integrated library system, through which we provide access to the Internet and magazine and reference databases, both in the Library and from home.

Professional Reference Librarians are available every hour the Library is open; they assist patrons in locating materials, finding information, and answering questions. The Reference Department provides instructional programming on library resources, and a librarian is available by appointment for one-on-one research/tutorial sessions.

The Library building covers 34,168 square feet, following the completion of a large renovation and expansion project in 1999. A large meeting and a small conference room are available for use by town departments and local non-profit clubs and organizations. Smaller study rooms are available for 1-4 users. A large gallery space is provided for local artists to exhibit their work.

The Library has a special collection in Bedford history, and is also home to the Bedford Flag, which was carried by the Minutemen at the battle of Concord Bridge on April 19, 1775. The Friends of the Bedford Free Public Library raise money through membership fees and book sales, the proceeds of which benefit the Library in the form of museum passes and funding for programs and special equipment.

The Library is a Town department, managed by a board of seven Trustees. Library Trustees are elected by the town and serve a three-year term. They are responsible for setting library policies, approving monetary expenditures, and the selection of the Library Director.

The Bedford Cultural Council operates a grant program each year under the guidelines of the Massachusetts Cultural Council. It allocates state funds for local community-based programs in the arts, humanities, and interpretative sciences that are accessible to all segments of the community. The Cultural Council typically provides funding for programs in each of the public schools; for events for seniors through the Council on Aging; for reading programs at the library for young children; for a concert series and for performances on Bedford Day and the Fourth of July.

The Public Ceremonies Committee organizes the Fourth of July parade, the summer series of concerts on the Town Common, the Bedford Day parade and fair, the annual holiday tree lighting ceremony on the Common, and the fireworks displays every fifth year.

The Patriotic Holiday Committee is responsible for Memorial Day and Veterans Day celebrations. Memorial Day activities include a children's essay contest and a parade of civic groups and bands. On Veterans Day, festivities include speakers and laying wreaths at Memorial Park.

The Bedford Minuteman Company, an historic re-enactment group, organizes the annual Pole Capping parade and observance at Wilson Park and provides a ceremonial opening for Annual Town Meeting.

The Bedford Historic Preservation Commission preserves, protects, develops and manages the Town's historical, archeological and some of its cultural assets. The Commission may initiate contracts, accept gifts and contributions, acquire property of historic significance subject to Town Meeting approval and hold hearings as required to the further its mission.

The Bedford Arbor Resources Committee (BARC) advises the Selectmen and other town departments and committees regarding the nature, quality and condition of Bedford's arbor resources; advises and supports them regarding programs and policies designed to monitor, promote, protect and enhance the town's arbor resources; as well as to enhance the community awareness of the town's arbor resources and practices that will serve to maintain and improve them.

BARC works with the town and schools to provide cultural, historical and educational projects for Arbor Day, as well as assisting in providing curricula to the schools about the value of arbor resources. It provides support to ensure adequate funding for tree programs of the DPW, by, for example, applying for grants, such as the Mass Releaf grant and the Planning and Education grant. BARC helped the town to attain and retain Tree City status and to receive a Heritage Tree award and establish a Heritage Tree program. It organized a September 11th Memorial Tree planting and ceremony in Memorial Park. It also organized a Magnificent Tree contest.

The Recreation Commission is responsible for the promotion and oversight of citizen recreation programs, identifying facility needs, and the management of land and building designated for recreation and playground use.

The Bedford Adult Education has been charged with responsibility to gather folks together to enjoy a learning experience in as many fields of interest as there is quality leisure time. Variety is key—many programs, ranging from yoga to fly-tying to watercolor painting are offered. Our schools are a significant investment by the community and a precious resource which is graciously shared with Adult Education after-school hours. Our schools are a precious resource generously shared after regular school hours in order to have the Adult Education Program provide talented teaches for the growth, development and passions of the Bedford citizenry.

The Bedford Center for the Arts, a private organization, sponsors a concert series, conducts an Arts Festival in June, holds Drama Camps and, in conjunction with the Library, arranges book talks and writing workshops. The Congregational Church sponsors “A New Song” folk music coffee house once a month on Saturday nights.

The Bedford Arts and Crafts Society is an organization of local artists that hosts art contests and shows.

The Rotary Club provides for many local projects, including creating Springs Brook Park and establishing a September 11th Memorial Park there.

The Bedford Chamber of Commerce sponsors an annual house tour and a popular circus held on the V.A. grounds. There is an annual American Indian Powwow held at the Veterans Hospital

Historic Buildings and Sites

Old Town Hall

The Old Town Hall was constructed in 1856, with school classrooms on the middle floor, and it was formally dedicated in January 1857. The Historic Preservation Commission has been working with town and state officials to preserve of Old Town Hall. The Town has received two matching grants from the Massachusetts Historical Commission’s Massachusetts Preservations Projects Fund. The first grant was for a structural analysis, outline plans and specifications for exterior preservation and a feasibility study describing options for returning the Old Town Hall to public use. The second grant provided for urgent exterior preservation work, which was completed in the spring of 2000. In November 2001 at a Special Town Meeting, a \$1.6 million bond issue was approved to restore the interior, to bring it up to current building code requirements and to build an addition that will make the building handicapped accessible. Town Meeting approved the use of \$900,000 in CPA funds for the preservation portion of the project.

Job Lane House

The Job Lane House (ca. 1720) is believed to date to the period of first English settlement and is among the oldest houses in Bedford. The west parlor retains frescoes of a river scene executed

in black and white or gray. These frescoes have been attributed to Rufus Porter, a leading mural painter who resided in Billerica from 1823 to 1843.

The Historic Preservation Commission is responsible for administration of this property, while the Friends of the Job Lane House help maintain the property and provide interpretive programs. Garden plots are available for community use. Due to the building's great age and its individual listing in the National Register of Historic Places, on-going preservation work must be done in conformance with appropriate federal and state standards. Town Meeting approved \$10,000 of CPA money for its restoration.

Wilson Mill Site

In the summer of 2000, the Town of Bedford purchased the land next to the Wilson Mill site from the Zion Alliance Church. This parcel has been combined with another purchased from the estate of Sophie DeVincent and 2 other small parcels already owned by the Town to create Wilson Mill Historic Park. The combined parcels total about 5 acres and are located at the east end of Old Burlington Road. They are bordered by Route 62, Route 3 and the Vine Brook Mill Pond.

A joint project of the Conservation Commission, the Historic Preservation Commission and Recreation Commission will preserve the historic Mill Site within the Vine Brook ravine; provide passive recreation opportunities; and provide access to the mill pond for canoeing and fishing. Currently the site is being cleaned up. With this historic location now protected from future degradation and its nomination to the National Register of Historical Places completed, an Historic Landscape Preservation Plan has been completed to guide the future use of the site.

The Recreation Commission plan for utilization of the Wilson Mill Site, intended to be consistent with the primacy of its historic preservation significance, is of three dimensions: (1) the placement of site-consistent play structures for children at a safe and appropriate location within the site, (2) the construction of ample walking trails throughout the site and around the mill pond that allow access while maintaining the natural, open-space feel of the site, and (3) the construction of some, if not all, of those trails in such a manner as to be accessible by disabled citizens.

The estimated cost for these recreational use improvements is approximately \$50,000, with CPA funds being proposed to fund the historical and recreation projects.

Depot Park

Depot Park, located at the old train station and the terminus of the Minuteman bike path, will preserve both the Depot and the Freight House and will feature a rehabilitated train car.

The Wilson Mill Site and the Depot Park Site both have applications pending for designation as National Register Districts. Both have already received accreditation by vote of the Massachusetts Historical Commission as eligible sites, and their certification is underway in Washington, D.C. Designation of these properties as National Register Districts would allow them to have the highest priority with other similarly designated properties for receipt of future federal or state preservation funds.

Town Hall

The Town Hall currently occupies the former Center School, which underwent major renovations in the late 1980s to convert it to its current use. It is also a significant contributing element to the Old Bedford Center National Historic District. Periodic major capital projects will be required to maintain the building's functionality in future years. Preservation costs would be eligible for funding under the Community Preservation Act.

Bacon-Fitch-Clark Mill Site

Michael Bacon III (ca. 1640-1707) operated a corn mill on the Shawsheen River at this site as early as 1675. About 1730, Benjamin Fitch (1703-1770) purchased land and the mill from the Bacon family. The original mill was destroyed during King Philip's War and immediately rebuilt. The mill eventually passed to Herbert Clark, who sold it to the Town of Bedford in 1947. The town demolished the mill as well as the dam in an effort to improve storm drainage.

The site has been evaluated as eligible for listing as a contributing element within a proposed Old Billerica Road National Historic District. A Historic Landscape Preservation Plan study similar to that recently completed for the Wilson Mill site will be needed before costs can be assigned for this potential project.

Abbott Farmstead Site (ca 1725)

Existing documents indicate that the location of Obed Abbott's 1725 homestead is in a parcel off of Springs Road that is currently subdivided between the first 3 northerly lots on Copeland Drive. The site includes the foundations of a house and barn, several wells, a silo, causeway and ramp. Until recent subdivision construction, the land had been undisturbed for about a century. Based on preliminary surveys in 1990 and 1991, the Massachusetts Historical Commission has determined that the Abbott site could contribute information meaningful to local, state and national history. The site has the potential to contribute significant information on “... vernacular buildings, historical land use, and the socio-economic interaction of rural farms with village, regional and international markets.”

The site is listed in the State Register of Historic Places, and a Preservation Restriction has been placed on the site. However, little can be done while it remains in private ownership split between 3 owners. If the Town is able to purchase the site, it can preserve the site appropriately and possibly have an archaeological investigation conducted. The costs for acquisition have not been determined.

Bedford History in Print

The standard historic reference up to 1891 is *The History of the Town of Bedford* by Abram English Brown, 1891.

The Bedford Sampler: Bicentennial Edition 1775-1975 was compiled and edited by the Friends of the Bedford Free Public Library in 1974. Several hundred townspeople participated in writing and compiling the Sampler as part of the Town celebration.

The Commission's "Old Bedford Center Historic District National Register Application," 1975, provides data for properties within the center.

A general resource is the *Community Wide Historic Properties, Bedford, Massachusetts* by the Bedford Historical Preservation Commission, 1998.

A personal view of Bedford is recorded in *An Awesome Century: the Magical Twentieth as seen from One Small Town* by Charles Williston Farrington with Judith Lindau McConnell, Town Historian, Bedford, Massachusetts, 1999.

In 2000, the Commission completed a "Pictorial Survey of Bedford Buildings Constructed by 1905." The collection, which contains over 800 photographs of the approximately 280 remaining buildings, is in the Bedford Room of the Bedford Free Public Library. The best and most representative photos for each building were printed and mounted in a binder for easy reference.

The story of the Bedford flag is recorded in three books: *The Bedford Sampler* noted above; *The Bedford Flag: A National Treasure* by Barbara Hitchcock, illustrations by Jan van Steenwijk, 1998 and *The Bedford Flag Unfurled* by Sharon McDonald, 2000.

Listing of Significant Historic Buildings, Sites and Objects

The Bedford Historic Preservation Commission prepared the following list of the most important buildings and sites in the Town of Bedford.

National Register of Historic Places

Old Bedford Center District
Wilson Mill/Old Burlington Road District (pending) by 1675
Bedford Depot District (pending) 1874
137 North Road David Lane House 1781
295 North Road Job Lane House 1715
50 Old Billerica Road Christopher Page House 1730
89 Page Road Nathaniel Page House 1690
118 Wilson Road Bacon-Gleason-Blodgett House 1740

Old Bedford Center District

Old Burying Ground 1730
Town Common/WW1 Monument
Wilson Park
4 The Great Road Squire-Stearns Mansion 1801
12 The Great Road Fitch Tavern c.1710

-
- 25 The Great Road First Church of Christ 1833
 - 26 The Great Road Penniman-Stearns House 1788
 - 75 The Great Road First Parish in Bedford, Unitarian 1816
 - 110 The Great Road Domine Manse 1730
 - 16 South Road Old Town Hall 1856

Buildings before 1729

- 445 Concord Road Richard Wheeler House 1695
- 255 Davis Road Eleazer Davis House 1705
- 12 The Great Road Fitch Tavern c.1710
- 295 North Road Job Lane House 1715
- 461 North road Farley-Hutchinson-Kimball House before 1700
- 229 Old Billerica Road Michael Bacon House by 1680
- 89 Page Road Nathaniel Page House 1690
- 137 Shawsheen Road Danforth-Webber Inn/Shawsheen House c.1700

Buildings 1730-1790

- 5 Brooksbie Road Reed-Lane-Loomis House 1772
- 71 Concord Road Fitch-Stearns-Thompson House 1775
- 191 Concord Road Captain John Moore House 1750
- 231 Concord Road Col. Timothy Jones House 1775
- 297 Concord Road Davis-Fitch House 1775
- 380 Concord Road David-Reed House by 1750
- 145 Davis Road Zachariah Fitch House 1730
- 245 Davis Road Daniel Hartwell House 1734
- 56 Evergreen Avenue c. 1775
- 26 The Great Road Penniman-Stearns House 1788
- 110 The Great Road Domine Manse 1730
- 97 North Road Putnam-Penniman-James Lane House 1740
- 127 North Road 1761
- 137 North Road David Lane House 1781
- 197 North Road Oliver Pollard House by 1740
- 375 North Road Timothy Lane-Buehler House 1750
- 50 Old Billerica Road Christopher Page House 1730
- 261 Old Billerica Road Captain Jonathan Wilson House by 1775
- 69 Wilson Road James Wilson House c. 1750
- 118 Wilson Road Bacon-Gleason-Blodgett House 1740

Cemeteries

- Old Burying Ground 1730
- Shawsheen Cemetery (1848)/Civil War Monument

Objects & Areas

Two Brothers Rocks 1637
Bacon-Fitch-Clark Mill Site by 1675
Abbott Farm Homestead 1760
Bedford Springs/Fawn Lake by 1850
Concord Old Line remnants 1636
Old Concord-Billerica Cart Path remnants
Railroad Corridors
Town Common/WW1 Monument
Wilson Park
Memorial Park/WW2 Monument (by 1950) & Patriot sculpture (2000)

Proposals and Recommendations

5-1. Expand Trails in Natural Resource Protection Areas

Obtain contiguous upland areas where possible to allow trail access to and through the property when natural resource areas such as wetland and floodplain areas are deeded to the Town. Look to creatively acquire easements to provide linkages to open space areas as a cost effective way to increase public access.

5-2. Support Town Festivals

Support and enhance the town festivals.

5-3. Preserve Old Town Hall

Continue efforts to preserve and restore Old Town Hall to productive long-term use by the Town.

5-4. Support & Enhance the Street Tree Program

Take steps to maintain Bedford's status as a Tree City USA. These include creating an inventory of the town's trees, establishing a tree ordinance, and creating and implementing a comprehensive, self-sustaining street tree management plan.

5-5. Ensure Concord River Recreational Use Compliance with NWSRS

Ensure the Recreational Use of the Concord River fully complies with federal laws pertaining to its recent designation as part of the National Wild and Scenic River System, in particular, to recent changes to laws covering the use of personal watercraft (e.g., jet skis) and snowmobiles. If necessary, update signage posted at the Town boat landing on Carlisle Road concerning recreational watercraft use.

5-6. Purchase Development Rights and Conservation Easements

Pursue the purchase of development rights and conservation easements where applicable to ensure the preservation of natural and cultural resources.

Chapter 6

OPEN SPACE AND RECREATION

Introduction	1
Analysis	2
Town Population Age Profiles	
Findings of Age Analysis	
Open Space Network	5
Structure for Open Space	
Creating the Linked Network	
Connecting Public Facilities	
Potential Acquisition of Sites	7
Financing Open Space and Recreation Facilities	
Open Space Priorities	8
Proposals and Recommendations	8

Introduction

The 1997 Open Space and Recreation Plan was reviewed at the outset of this comprehensive planning process. Many of the tasks typically covered under this element were completed in that study. Reference will be made to those sections when germane to the analysis and conclusions in this chapter, as it is the intention not to duplicate work already done.

The Plan records environmental problems in the Town including hazardous waste sites, landfill site, chronic flooding, and ground and surface water pollution. Lands of conservation and recreation interest have been inventoried in two groups: private parcels, and public and non-profit parcels. These lands are mapped and a legend identifying each parcel is provided. “Areas of Conservation and Recreation Interest” are identified in Table 16. Figure 10, the “1997 Action Plan”, within the 1997 Open Space and Recreation Plan maps sites of conservation interest, but shows no sites of recreation interest, only the location of existing athletic fields even though the table identified a few sites with some potential for active recreation use.

General comments have been made during the formulation of goals and at other occasions that recreation facilities did not get as much consideration in the 1997 Open Space and Recreation Plan as they should have compared with the level of study and proposals for conservation of land. To address this concern from a policy standpoint an analysis will look at recent trends in the changes of defined age groups in the Town. Some following discussion will identify the type of recreation activities most desired by the various age groups as revealed in discussions and citizen comment throughout the comprehensive planning process. The Recreation Commission was interviewed to obtain their insights to the needs for additional facilities in order to run their current programs or serve needs that cannot be met at this time. Some proposals for new recreation facilities will be outlined for Town consideration.

Another main focus of this element will be to formulate proposals identifying an enhanced open space network for Bedford. The network begins with the basic structure of open spaces in the 1997 Open Space and Recreation Plan. Addition of new proposals are expected to improve the connectivity of the entire network of open spaces to provide more trails for hiking, biking, and cross country skiing; wildlife habitat corridors; and protection of wetland areas. These concerns and potentials are likely to be items addressed in greater detail as the current update of the Open Space and Recreation Plan progresses, which is targeted for completion soon.

Analysis

Town Population Age Profiles

Recreation needs vary in towns due to current trends in leisure time pursuits and the age profile of the population. For instance school age children often focus on organized sports while much of the senior population enjoys walking. Therefore, it is helpful to look at the magnitude of different age groups and the extent to which each is expanding or contracting. The base for such an analysis is the population age profile data found in Chapter 2, Land Use. This data has a base year of 1980 with additional data in 1989 and 1999 that allows an analysis of the growth in the decades of the 80s and 90s. Calculations were made of the percentage change in the decades of the 80s and 90s along with the total change over the two decades, which is identified as the percent change relative to 1980 that occurred at the turn of the century.

Age Profile Analysis

- Pre-School (0-5 years)
 - 80s - decreased by 11%
 - 90s - increased by 21%
 - At turn of century about 7% greater than 1980
- School Age (6-15 years)
 - 80s - decreased by 28%
 - 90s - increased by 18%
 - At turn of century about 85% of 1980
- Young Adult (16-35 years)
 - 80s - increased by 13%
 - 90s - decreased by 32%
 - At turn of century about 77% of 1980 (3/4)

-
- Older Adult (36-65 years)
 - 80s - increased by 14%
 - 90s - increased by 20%
 - At turn of century about 40% greater than 1980
 - Seniors (66 years plus)
 - 80s - increased by 60%
 - 90s - increased by 60%
 - At turn of century over 2 ½ times greater than 1980
 - (Over 75 years)
 - 80s - increased by 90%
 - 90s - increased by 80%
 - At turn of century about 3 ½ times greater than 1980

Findings of Age Analysis

Pre-School Population

Even though there was an eleven percent decrease in the 80s, over the two decades pre-school children increased by seven percent at the turn of the century. The most common type of facility for this age group is a tot lot having various climbing experiences, slides, etc. A nice facility exists near the Town Center with others at the Lane School and Davis School. Such tot lots are typically recommended to be located within residential areas on sites of about one acre serving a radius of one-half mile, but many are located on elementary school grounds. Additional facilities could be located on publicly owned property in residential areas removed from the Town Center to better serve more distant neighborhoods where families could walk with their youngsters.

School Age Population

Although the number of school age children decreased by nearly thirty percent during the 80s, it increased by nearly twenty percent in the 90s, so at the turn of the century the school age population was 85% that of 1980. This ratio does not reflect the true demand for recreation facilities by this age group. First, there are many more girls that participate in athletic pursuits over the last two decades; that growth has been phenomenal. Spurring along the great growth of girls sports was the Title IX law specifying that girls needed to be given an equal opportunity to participate in sports.

Another change has been the popularity of soccer and lacrosse, both needing large open field areas. Youth have been attracted in far greater numbers to these sports rather than either football or softball. This then also means a change in the type of play fields that need to be provided. One only needs to drive past play fields on weekends to witness the enthusiastic young players filling all the facilities. Not only is soccer growing by leaps and bounds, but also it is increasingly being played as an organized competitive activity in both fall and spring, as is also beginning to be observed for the sport of lacrosse.

Additionally this age group requires more recreation options than organized sports. The age spread represents diverse developmental and social needs that would benefit from opportunities and facilities beyond the usual school and sports team options. To this end the Recreation Department has allowed for opportunities for pick up basketball games and a skateboard park has been built behind Town Center.

Encouraging opportunities for non-competitive youth recreational engagement may require more designated youth space in the future as documented in Chapter 7. The Police Department has indicated that a drop-in center would reduce the number of juvenile disturbances and a recently released Brandeis report entitled “The Need For Space: An Integrated Assessment of Youth Space in Bedford” postulates that Bedford’s youth would be less likely to drink or do drugs if such a facility were available.

Young Adult Population

Although the young adult population increased during the 80s, it drastically reduced during the 90s by over a third so that at the turn of the century it was three-fourths its size in 1980. Increasingly young adults find it hard to either afford or justify the higher prices for housing in suburbs closer to Boston and are opting for housing in the ring of outlying suburbs. This age group is beginning their work careers and many play sports with their company teams. The popular sports for this group tend to be softball and volleyball. Due to the recent increased popularity of soccer, there are more companies that are beginning to form soccer clubs as well. Many in this age group like to have open recreation hours in gyms where they can have pick-up games of basketball rather than participation in a structured league format. Many in this age group as well as older adults populate the private gyms and exercise clubs.

Older Adult Population

This has been the typical age to become members of country clubs, tennis clubs, and private swimming facilities. Increasingly members of this age group are opting to continue patronizing private gyms and exercise clubs instead of joining country clubs. Since many are opting to delay their families, a significant number are still involved with their children in their sports activities. Also, an increasing trend is for many to have one or more pieces of exercise equipment in their home, with a number having small gyms instead of workshops. A good number of these residents use bikeways and jogging paths as their schedules permit.

The older adult population in Bedford has increased steadily throughout the last two decades. In the 80s growth was 14% followed by 20% in the 90s so that by the turn of the century this sector of the population had increased by 40%. This age group is buying the new houses being built and adding on to the smaller homes they purchase.

Senior Population

Residents in this segment of the population have increased more than any other in Bedford; it has increased steadily by 60% in both the 80s and 90s. At the turn of the century there were over 2 ½ times the number of seniors over 66 than there had been in 1980. Many of the younger seniors, ages 66 to 75, are still active in sports participating in such endeavors as cross country skiing, bicycling, hiking, swimming, golf, tennis and daytime use of exercise clubs. Few actively participate in field sports or play basketball. More and more take up activities such as group aerobics, organized dancing, and participate in organized trips and outings. Walking in the neighborhood is an enjoyable exercise and activity, particularly where there are sidewalks. An alternative is to walk around a large mall, but that is no substitute to the former.

A subset within the senior population is those over 75. Growth in this subset exploded in Bedford during the last twenty years growing by 90% in the 80s and 80% in the 90s so that at the turn of the century their population was about 3 ½ times that in 1980. These residents really enjoy the socializing that is provided by groups like a senior center or their long established organization in a house of worship. Senior centers and clubs frequently are the only place where many can escape the isolation of their living arrangements. Many close friends have passed on and frequently constraints on their mobility make them dependent on walking, public transportation or family members. Many seniors look to a senior center for counseling and help with some of the routines of daily life.

Unfortunately in many communities the segment of the population over 75 is overlooked because few are represented in the government and, at this age, even if they had been active in the community they have lost the desire to be combative. So while schools and soccer fields are being built, the seniors get along with what is available. This analysis supports reports from Council on Aging staff that existing facilities are seriously inadequate to meet current needs of the program and why the Space Needs Committee recommended expanding COA's facilities significantly. It is likely that the current program for expanded facilities will be undersized by the time it is built, so it would be prudent to have an option for added senior center expansion should the size of this segment of Bedford's population continue to enlarge as expected.

Open Space Network

A high priority goal for Bedford has been to create a linked network of environmentally diverse, well-maintained conservation lands, historic and cultural features and active recreation sites. The Town, especially the Conservation Commission, has followed a targeted plan of land acquisition that would maximize linkage among the properties and other interesting features of the Town. Further, sidewalks, walking trails and bike paths have been constructed and continue to be planned in order to connect neighborhoods and commercial areas to this network. The Conservation Commission, the Sidewalk Committee, the Bicycle Committee and the DPW have all actively worked toward this goal for many years. The town's participation in the Community Preservation Act has enabled Bedford to acquire new conservation land, including the Altmann property abutting Great Meadows National Wildlife Refuge and 16 acres on Shawsheen Road that protects critical watershed surrounding the town's remaining wells. The town has also used CPA funds to build an enthusiastically received skateboard park.

Creating the Linked Network

The Town is in the process of creating a new historic and recreation center at Depot Park, in the south central part of town, which can become a vibrant hub of activity and trail connections. It is located at the junction of Loomis Street, South Road and the Minuteman Bikeway, which almost connects to The Narrow Gauge Rail Trail that runs northerly through the center of town to the Billerica boundary. The Town should attempt to enhance the connection between the two trails. A bike repair and rental business is located on Railroad Avenue near South Road facilitating recreational pursuits. The Town should improve bicycle access from Depot Park to commercial

and residential areas in Bedford, as well as along the town-owned railroad right-of-way toward the Concord town boundary and beyond.

Completing this link in the bike trail would also improve access to the Concord River and the Great Meadows National Wildlife Refuge (GMNWR), two important natural resources for the Town that are located on Bedford's western boundary. Ideally, the Town could create a walking path through these federal lands to Two Brothers Rocks to the north, which would also connect to residential neighborhoods and the public boat-launching site on the Concord River just north of Carlisle Road. The Harvard University property accessed off Old Causeway Road could also be linked to this trail. With the recent purchase of the Altmann property, the Town will be able to complete the Conservation Commission's project to create a publicly owned connection between Dudley Road and GMNWR property, a short distance from Two Brothers Rocks, thereby providing a trail connecting Two Brothers Rocks to North Road.

From Dudley Road, there are two entry points to a loop trail through the Huckins Farm Conservation Restriction that connects to the Minnie Reid Conservation Area. This ends at a small parking lot at the North Road/Chelmsford Road intersection, which is a short distance from the Narrow Gauge Rail Trail. Developing a direct connection to the bikeway would be ideal. Currently, in order to reach the Narrow Gauge Rail Trail while staying on the public way, the trail goes south along North Road, onto Sweetwater Lane and past the Lane School.

This trail, running from the rail-road right-of-way junction with Concord Road, then following the Concord River past Two Brothers Rocks to the northern boundary of the Narrow Gauge Rail Trail, would be three miles.

Other parcels of conservation land easily accessible to the Narrow Gauge Rail Trail are Buehler Pond, Governor Winthrop, Hayden Highlands, Sheldon, and Murray York.

Residential properties, primarily south of Burlington Road, are small and plotted to the centerline of the stream, making it difficult to establish a public corridor along the streambed. A forward-looking and continuing dialogue should be undertaken with each of the Shawsheen River property owners to obtain needed easements. Similarly, if the Town can create a short segment of trail following Springs Brook from public conservation property south of Fawn Lake on Springs Road to the VA Hospital, then it, Springs Brook Park, the Carlton-Willard Village retirement center and Old Bedford Road can all be connected to the system, too.

If the Town connects the Minuteman Bike path along the town-owned railroad right-of-way toward Concord, additional conservation parcels that would be directly accessible to the network include Elm Brook, Mary Putnam Webber, Vanderhoff, and Dellovo.

Connecting Public Facilities

The high school, middle school, library, police and fire departments, Town Center, town offices, tot lot, tennis courts and skate park would all be connected to the network through improved bicycle access to the nearby Narrow Gauge Rail Trail.

Further, this trail would pass through town playfields where a landscaped paved path could be established. Seniors could use the trail for short walks from Town Center to the benches near the playing fields as well as to shopping.

Memorial Park, Page Field, VA Hospital, Fawn Lake and Lane School are all directly adjacent to the Narrow Gauge Rail Trail.

The Town is currently trying to acquire a portion of the Eisenhower property with access to Summer Street for a variety of uses. It could connect to the Minuteman Bikeway through the Town Forest and a narrow 220-foot open right-of-way north of South Street.

Potential Acquisition of Sites

The Town is interested in acquiring large parcels of land for multiple uses, including a site for a possible new school, affordable housing, playing fields and conservation. The two obstacles the Town faces is that few parcels that can accommodate these uses—meeting requirements for size, topography, soils and location—are available for purchase in Bedford and even if they were, all land in Bedford is very expensive.

Two possibilities are the Eisenhower and Harvard properties.

The 54-acre Eisenhower property is in the southeastern sector of town, close to Hanscom Field, between the flight paths for the two runways. It is adjacent to the Town Forest, and thus would provide added value as a recreation resource for the Town.

The Harvard University Property consists of four parcels in the assessor's records. Parcels 7A and 10 on Old Causeway Road are mostly wetland consisting of 7.9 acres and 10.7 acres respectively, suitable for conservation use. Parcel 9, 47.3 acres, is the largest developable parcel. Across the road, parcel 8, 12.8 acres, is mostly developable upland. The roadway can be moved and the parcels coupled with a small portion of upland on parcel 7A to make approximately 55 acres of contiguous upland that could be used for a variety of Town needs. The property abuts the Great Meadows National Wildlife Refuge and would have direct access to the proposed trail along the Concord River, as suggested above, as well as to existing trails on Huckins Farm property.

Financing Open Space and Recreation Facilities

Purchasing land and creating passive and active recreation facilities is extremely expensive. The most feasible method for raising substantial capital is to pass a Town bond issue to support a defined program. The Community Preservation Fund is a new resource for open space purchases. A creative option might be to offer a lease-buy arrangement to an institutional owner like Harvard University, wherein Harvard could continue to have limited use of the land until the Town is ready to change its use. Also, property can be subdivided into different parcels to defray

some of the costs by taking advantage of targeted state programs. For example, wetland areas might be purchased with state self-help funds, a program available only for conservation and some passive recreation use.

Open Space Priorities

A re-examination and refinement of open space priorities is being addressed in the update of the 1997-2002 Open Space and Recreation Plan, now in progress. However, the following strategy could enable the town to address all the open space and public facility needs described in this Comprehensive Plan:

1. Acquire properties with potential for multiple uses.
2. Acquire properties or easements that protect our aquifer recharge areas, water resources and unique wildlife habitat.
3. Acquire parcels or easements to connect breaks in the open space and bikeway, trail and sidewalk network. An example is use of the right-of-way between the Minuteman Bikeway and South Road to connect the Town Forest where it nearly connects across South Road.
4. Improve bicycle access along the Town-owned railroad right-of-way to the Concord town boundary.
5. Acquire conservation lands that are visible along major public roads to enhance permanent small-town character.

Proposals and Recommendations

6-1. Explore Eisenhower and Harvard Land Purchases

Acquire the Eisenhower and Harvard University lands.

6-2. Create a Plan to Consolidate the Open Space and Trail Network

Establish a more comprehensive Open Space Network Plan. Develop consensus on the open space network between the Board of Selectmen, Planning Board, Conservation Commission and Sidewalk Committee. Confirm a strategy for implementing the plan.

6-3. Revitalize Depot Park Area

A significant opportunity for Bedford is the development of Depot Square as the focus of a revitalization area, combining new commercial enterprises as well as new residential opportunities to accommodate a wide range of incomes and lifestyles. This development can also grow into a significant destination for cyclists using the Town's bike paths. Such development can be accomplished through an amendment to the Zoning Bylaw that would allow residences, retail establishments and services in this commercial district in sufficient densities to accomplish a village square vitality in support of the historic character of the area.

6-4. Establish A New Bikeway

Prepare a strategy and a timetable with milestones for advancing the project for construction of a third bikeway in the town-owned right-of-way to the Concord boundary from its idea stage into implementation. Work with potential funding sources to put together a package of financial participation from as many sources as possible including federal, state and local possibilities. Look to participation by the Town of Concord to extend the trail to the observation tower at the Great Meadows National Wildlife Refuge. Use new sources such as the Community Preservation Fund. Phase planning and design services as necessary to move the project forward to the next level of commitment toward construction.

6-5. Conduct A Recreation Needs Study

Assess preferences of town residents as reported in the Recreation Survey conducted for the current updating of the Open Space and Recreation Plan. Then perform a comprehensive review and documentation of current facilities and match them to expressed and actual needs. Explore means to maximize use of existing facilities. Project future needs that would require additional land or facilities.

6-6. Include Park Space at Convenience Centers

Include small public parks in the mix of allowable uses for neighborhood convenience centers.

Chapter 7

SERVICES AND FACILITIES

Introduction	1
Details of Existing Facilities	2
Town Offices	
Police Department	
Fire Department	
School Department	
Library	
Council on Aging	
Youth and Family Services	
Public Works Department	
Town Center	
Old Town Hall	
Financial Impact of Town Facility Projects	7
Civic Involvement	7
Proposals and Recommendations	8

Introduction

This chapter addresses Bedford's existing and anticipated needs for municipal buildings and facilities. The objectives of this chapter are the following:

- Maintain a high level of municipal services in accordance with the goals in chapter one of this plan.
- Maintain existing facilities to preserve the level of service and lowest life-cycle costs;
- Continuously monitor changes in demographics and demand for services that would require modifications or expansions to Town facilities;
- Plan major renovations, replacements and expansions of facilities in a manner that permits the Town to maintain a high bond rating and favorable property tax rate.

Details of Existing Facilities

Town Offices

Located on Mudge Way in the central municipal complex, the Town Hall was renovated and converted from a closed school building in 1988. The Town Administrator, Town Clerk, Planning Department, Assessors Department, Finance Department, Recreation Department, Health Department, Code Enforcement Department, and Conservation Administrator are located in this building. Some Town Departments have expressed a current or projected need for additional office space and space for storage of documents. The Relocation of the Recreation Department and Health Department to an expanded Town Center will help with space needs at Town Hall.

Police Department

The Police Department moved into the new Police Station located on Mudge Way in April 1997. The 11,000 square foot facility, the only police facility in Bedford, includes offices, conference rooms, adult and juvenile holding cells, and a training facilities/public meeting room with a capacity of 24. Outside, there is space for parking eight police vehicles and the Dog Officer's van. The facility houses state-of-the-art E-911 consoles and other accoutrements of a modern police force.

The staff of the Police Department currently includes 27 Police Officers, one full-time and one part-time secretary, the Dog Officer, a school crossing guard and 9 (2 per shift) civilian dispatchers who provide 24-hour 7 days/week emergency response service to the Bedford community. The new facility was designed to accommodate a staff of up to 35 persons and to meet all the Police Department's facility needs through the year 2020.

Bedford's police are equipped with mobile data terminals which are linked to the state's database of wants and warrants to amplify the Officer's effectiveness and enhance their safety while on patrol. The Department's current capital expenditures planning include monies for new computer systems to enable Police Officers to also access the statewide identification database of photographs and fingerprints.

Fire Department

In 1997, the Fire Department relocated to a new 12,000 square foot Fire Department headquarters fashioned from the original joint Police Headquarters/Fire Station on Great Road. It is expected that this state-of-the-art facility will meet the Town's needs through 2020.

The facility, which includes 2,000 square feet of new construction and 10,000 square feet of renovated space, more than doubled the size of the department's original 5,000 square foot allocation. The improved facility provides a Day Room/Kitchen, five bedrooms, administrative space, and an apparatus floor. The expanded apparatus floor includes a garage for fire trucks and materials storage room and an emergency medical service room. The administrative wing includes a lobby/reception area, offices for the Chief and two fire prevention officers, conference room, and training room.

Fire department vehicles, most of which have been purchased within the past ten years, include a rescue ambulance (2002), Engine 2 (1988), Engine 3 (1990), forestry vehicle (2001), ladder truck (1997), and support vehicles for the Chief (2001) and two fire prevention Lieutenants (1997 and 1998). Specifications have also been prepared and ready to go to bid for a new Engine, which will be Engine 1 (2003). Replacement equipment purchases are scheduled based on safety and reliability predictions and are reflected in the Town's six year Capital Expenditures Plan.

It is noteworthy that the number of fire alarms as well as the number of actual fires has steadily and significantly decreased within Bedford over the last decade. This is attributable to the attention and effectiveness to fire prevention and inspection services being delivered by the Department. The Department workload has increased over this period, however, as the emergency medical response role of the Department has expanded at an even faster rate. Improvements in E-911 communications and the aging of Bedford's population have imposed a significant challenge to the skill set and capability of the Department, which it has met.

The new Fire Department headquarters in the center of town should serve the needs of the town for the foreseeable future. The department should maintain its focus on equipment and staffing needs for this central facility. In addition, an investigation of coverage of the Middlesex Turnpike area should be periodically reconsidered, given the continuing projected growth of the Middlesex Turnpike industrial area.

School Department

Elementary and Middle Schools. In recent years, the Town has appropriated funds to construct a new elementary school, to fully renovate and expand a second elementary school, and to fully renovate and expand the Middle School. As a result, these three facilities are projected to meet the space requirement for Grades K-8 through 2010. Each building could add up to 50 students, if required. But core facilities (e.g. cafeteria and library) would restrict expansion beyond two classrooms. Currently, the projected peak enrollment for this age level occurs in 2008-09. The construction of new apartment projects in Town or a change in the number of school-aged children per household could require additional space.

High School. The High School has adequate space to meet projected enrollment through 2010. The building was constructed in 1960, and is in need of updating. Since 1996, funds have been

appropriated to replace the heating system, install heating system controls, renovate bathrooms and replace lockers. The School Committee has presented a plan of capital projects totaling approximately \$8 million that would renovate the existing building in a manner similar to the renovations of the Lane Elementary School completed in 2003.

Gymnasiums. New 9000 square foot gymnasiums were part of the new construction at each of the Davis Elementary School (K-2) and the Lane Elementary School (3-5). These facilities are available for the school programs and the Recreation Department for after school programs.

Library

The Bedford Free Public Library serves the Bedford community as a valued resource of information for adults and children. The Library offers collections of print materials, videocassettes, compact discs, on-line access to computerized databases and the Internet, as well as the Bedford Flag room. Located within the municipal complex, the Library is centrally located near the Town Offices building, Town Center building and Bedford High School.

The 1998 expansion of the library provided additional space for seating, collections, computer terminals, and a new meeting room for community groups. It is anticipated that the Library will meet the needs of the Bedford community through 2020.

Council on Aging

The Council on Aging provides many important services to Bedford's elderly population. The Senior Center, located in the Town Center building, received 17,900 visits in FY2001, an increase of 9% over the previous year. COA facilities occupy 3,000 square feet and include administrative offices; a multi-purpose room that serves as a drop-in area, office space for volunteers, counseling space, and kitchen area; a game room; program room with resource library and computer lab; exercise room, and fix-it shop. Council on Aging staff includes the Director, administrative staff, a volunteer coordinator and a counselor.

Programs and services include coordination of day trips, educational programs, discussion groups on end-of-life issues, blood pressure clinics, support groups, professional counseling on legal issues, financial planning, computer classes, and exercise classes. In addition, the counseling program recorded almost 9200 contacts with our seniors in FY2001. Many of the currently available facilities are too small or are not designed to meet the needs of the program. For example, the counseling space, which is located in the multipurpose room, does not have adequate privacy.

The Space Needs Committee report recommended expanding the COA's facilities significantly. Required new spaces that have been identified include a second classroom for educational programs, two conference spaces for support groups and counseling, an adult day care center, office space, storage and a lounge. In addition to increasing the size of its facilities, the COA

needs to improve the proximity of related functions, access, and the quality of its facilities. Annual Town Meeting in 2002 voted for an expansion of the COA facility in Town Center.

A related program operated by Minuteman Homecare provides a meals program for seniors at the Town Center serving approximately 15 lunches at the Town Center lunchroom and delivering 20 meals to homes per day. The possibility and desirability of shared office space with Minuteman Homecare should be explored through joint discussions.

Youth and Family Services

Youth and Family Services (YFS) supports and nurtures the social, emotional, and developmental needs of children, youth, adults, and families in Bedford. Youth and Family Services received over 1,000 visits from residents needing assistance in FY 2001, an increase of 20% from FY 2000. Programs and services include counseling services, assessment for local entitlement programs like fuel assistance and veterans benefits, prevention services related to healthy lifestyle choices, educational programs related to parenting and family development issues, and youth support in the form of Job Match services and after school programs.

The Space Needs Committee report recommended at least doubling the size of the YFS facilities. Required new spaces that have been identified include a private office for the Prevention Services Coordinator, a private office for the Youth Development Coordinator, a conference room, a kitchen table area for staff and residents alike, increased resource area, and increased storage space. In addition to increasing the size of its facilities, YFS needs to improve the proximity of related functions, access, and the quality of its facilities. Annual Town Meeting in 2002 voted to fund an expansion of Town Center, which would provide office space for Youth and Family Services.

YFS also has a Youth Center of 1200 square feet at Town Center, lower level. This space, though identified elsewhere in this report as inadequate, does serve as the office for the Veterans Agent. The Veterans Agent has contact with over 200 Bedford veterans annually in the small office within the Youth Center.

YFS sought assistance from Brandeis University in determining the need for youth space in Bedford. Their report, entitled "The Need for Space: An Integrated Assessment of Youth Space in Bedford" documents the results of focus groups and surveys of middle school and high school youths in Bedford. Ninety three percent of Bedford youths surveyed believed there was a need for more youth space. Space allocated for this age group in Space Needs Schematic 2000 request was 2600 square feet plus access to a 4000 square feet shared large activity room/half court gym. Based on the Brandeis report and facilities in comparable communities, 6000 square feet of well-designed youth space in Bedford would serve the community's current and immediate needs for this age group.

Public Works Department

The Public Works Department supports the infrastructure of Bedford. The department is responsible for both capital improvements and day-to-day operation and maintenance of the Town's roadways, water supply, sewers, and recreation facilities. The Department also provides emergency services during snowstorms, hurricanes, and other natural disasters.

The main DPW facility is located on a two-acre site on the Great Road, near the geographic center of town. The site is constrained against growth by its sitting hard against the Shawsheen and Elm Brook on either side and wetlands to its rear. The facility is not adequate to serve the department's needs. In addition to a lack of adequate space for staff, operations and storage, the building, originally a car dealership and machine shop, has totally inadequate and outdated building systems. DPW yard functions are located adjacent to the closed town landfill off Carlisle Road, near the northernmost end of town. Other activities, including storage, are scattered throughout the town.

The Public Works Department has identified a need for a new primary facility. Annual Town Meeting in 2002 voted to fund the construction of a new facility on the existing site of the Department of Public Works.

In addition, the DPW has identified short and medium term needs for pump station maintenance, various road resurfacing/rebuilding projects, and cemetery expansion.

Town Center

The Town Center is a valuable community resource providing ad hoc community meeting space on a rental basis as well as offices for the Bedford Food Pantry, Bedford Chamber of Commerce, and Bedford Babe Ruth Baseball. At times when use of the food pantry increases, this could be a social indicator of citizens in need and may indicate changes in the Town are occurring that should be addressed by the public sector.

Town Center houses the exceptionally popular Kid's Club, various summer programs, and the Council on Aging. It also houses a totally inadequate youth center run by Youth and Family Services. Adequate, well-designed space for teens has been overlooked and warrants prioritizing, especially given the indication from the Police Department that a drop-in center would reduce the number of juvenile disturbances and from the Brandeis report that youth would be less likely to drink or do drugs.

Annual Town Meeting in 2002 funded phase I expansion and improvement to Town Center, committing \$900,000 in Community Preservation Funds to help finance the project. This will provide additional space for the Council on Aging and the Kids Club. It will also allow the Board of Health and Recreation Commission office to be relocated from Town Hall to Town Center. By planning to follow through on the phase two part of the initial plan, the Town will meet the need for youth space in part in the not too distant future.

Old Town Hall

Old Town Hall is prominently sited in Bedford center facing the historic Town Common. This building, itself a historic landmark, served various functions throughout its existence – as a school, as the town's first library, and as the primary space for public meetings and town offices. A three story, 7,200 square foot facility, it has not been in use for many years. The Town recently accepted a significant grant for the restoration of the building's exterior, in return for a commitment to its permanent preservation.

Special Town Meeting in October 2001 approved a 1.6 million dollar bond authorization against future Community Preservation Act funds for interior refurbishing.

Financial Impact of Town Facility Projects

The Town enjoys an excellent bond rating. The construction and renovation of the Davis and Lane elementary schools cost 23 million dollars, but the projects are eligible for 57% reimbursement from the State. These projects were financed with 20-year bonds without an override of Proposition 2 ½, made possible by the payoff of older bonds and tax revenues from new construction in Town.

In 1996, the Town issued 9.6 million dollars in 10-year bonds exempt from Proposition 2 ½ to fund the new Police Station, the Library expansion, expansion and renovation of the Fire Station, and five new classrooms at the Lane School. These bonds will be fully paid in fiscal 2006. After 2006, the \$1 million in annual debt service costs for these bonds can be used to pay the Town's share of debt service on the 15 million dollar renovation and expansion of the Middle School approved by the Town in October 2000.

In summary, since 1998, the Town has approved \$38 million for new construction and renovation of its two elementary schools and the Middle Schools without increasing the annual funding for Exempt Debt Service or other funding outside the normal tax increase permitted by Proposition 2 ½.

Civic Involvement

Bedford's high level of civic involvement is a large part of what makes Bedford a small town. People participate actively in town committees and volunteer activities. Through this participation, they meet other people and become even more involved in and committed to the

town. To maintain Bedford's small town character as opposed to only its small town appearance, the town must undertake specific and active efforts to encourage volunteerism.

Proposals and Recommendations

7-1. Achieve Solution for High School Improvements

The need for major capital expenditures for the High School has been documented. The Selectmen, the School Committee, Capital Expenditure Committee and the Finance Committee must take leadership roles to analyze and to communicate the impacts of the recommended solutions on level of services, tax rates and possible constraints on future operating budgets.

7-2. Monitor and Study Town Space Needs

The Selectmen and School Committees should take responsibility for continually monitoring or appointing citizens committees to monitor and study the space needs of Town Departments, and the impact of changing demographics and demand for services on Town buildings and facilities. Informing the Town, investigating alternatives, building a consensus for action, and timing major capital projects to maintain creditworthiness and a reasonable property tax rate require 2-3 years of advance study and planning and voter education.

7-3. Update Town Web Site

There should be a complete and regularly updated town Web site to facilitate communication among town committees and residents to support sustainable development.

7-4. Promote Civic Involvement

Take specific and substantial actions to promote and support civic involvement and volunteerism. Specific resources (volunteer or professional staff time) should be expended on this. Ideas might include a more intensive volunteer recruitment effort with tables at Bedford Day and Town Meetings, recruitment events at the COA, etc. We could provide more volunteer training. We could have an annual volunteer recognition night. We could arrange or coordinate childcare for parents and nighttime transportation for seniors so they can participate in committees, hearings, and Town Meetings.

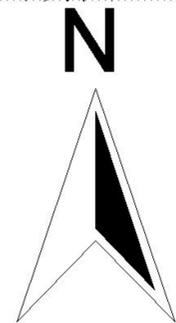
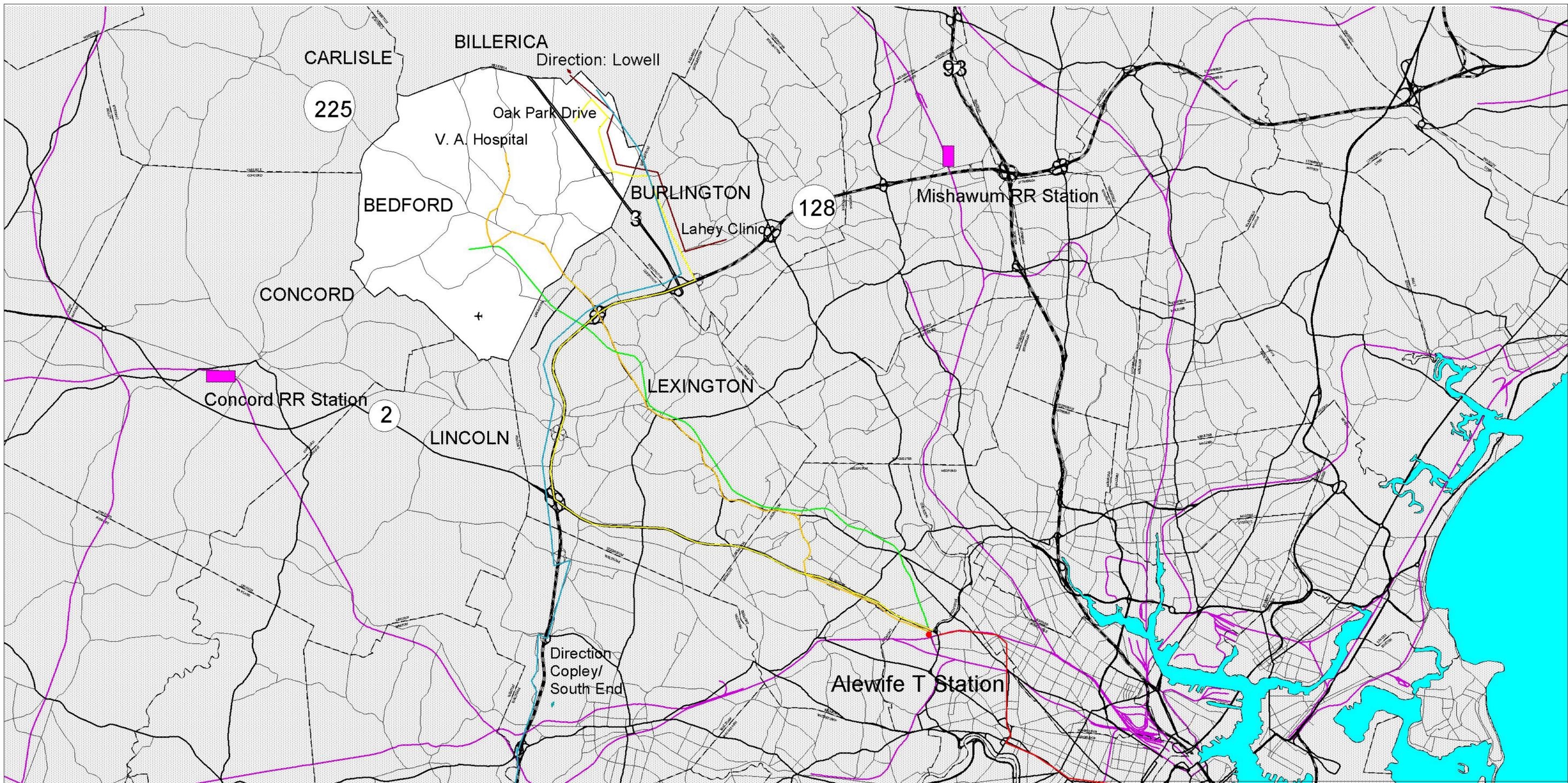
Chapter 8

CIRCULATION

Introduction	2
Overview	2
Roadway System	
Employment Centers	
Regional Public Transportation System	
Local Public Transportation System	
Bikeways	
Travel Data and Analysis	6
Traffic Volumes	
Travel by Bedford Residents To Their Workplaces	
Travel by Non-Residents To Their Workplace in Bedford	
Accident Experience	
Potential System Improvements	14
Anticipated Worsening of Traffic Problems	
Constraints to Improvement in the Roadway System	
Potential Improvements to the Roadway System	
Potential Improvements to Regional Public Transportation	
Potential Improvements to Local and Sub-Regional Public Transportation	
Potential Improvements to the Bikeway and Sidewalk Systems	
Transportation Demand Management (TDM) Alternatives	18
Proposals and Recommendations	19

List of Figures

8-1	General Location Map, Major Roads & Public Transportation..	2A
8-2	Roadway System & Employment Centers.....	2B
8-3	Estimated Road Traffic Volumes.....	6A
8-4	Travel Directions of Employees to Employment Centers in Bedford –1990.....	12A
8-5	Estimated Travel Directions of Employees to Employment Centers in Bedford at Buildout.....	12B
8-6	Traffic Accidents 1999 – 2000 Involving Injury or Fatality.....	12C



-  Route 170 Bus
-  Red Line Subway
-  Minuteman Bikeway
-  Route 351 Bus
-  Route 62 Bus
-  Route 19 Bus (LRTA)
-  Trains

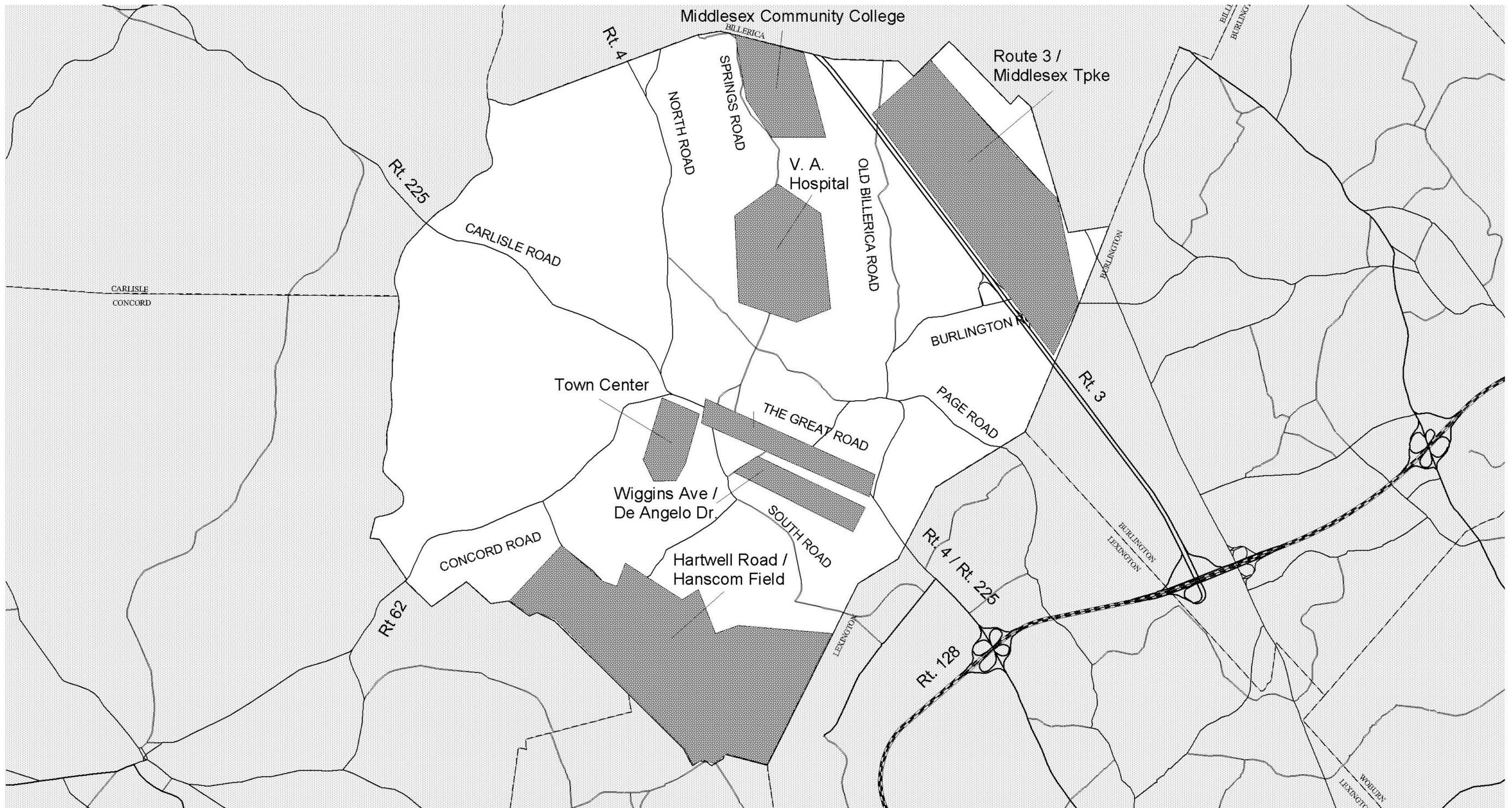
Source : Roads & Trains from MAPC, Bus lines from MBTA and LRTA

TOWN OF BEDFORD
COMPREHENSIVE PLAN

Figure 8-1 General Location, Major Roads
& Public Transportation

Produced by the Bedford Planning Board
June 2001

The information depicted on this map is for planning purposes only.
It is not adequate for legal boundary definition or regulatory interpretation.



TOWN OF BEDFORD
COMPREHENSIVE PLAN

Figure 8-2 Major Roadway System
& Employment Centers

Produced by the Bedford Planning Board
June 2001

The information depicted on this map is for planning purposes only.
It is not adequate for legal boundary definition or regulatory interpretation.

CIRCULATION

Introduction

This chapter discusses vehicular and non-vehicular travel in Bedford.

The Overview describes Bedford's location within the Boston metropolitan area. It then describes the town's internal and regional circulation systems: the internal roadway system; the location of employment centers; the regional public transportation system; the local public transportation system; and the bikeways.

The next section is a discussion of travel patterns primarily for work-related trips, beginning with current traffic volumes. The analysis includes two categories of work-related trips: travel by residents to their workplace and travel by people from other municipalities to work destinations within Bedford. Travel by both privately owned vehicles and public transportation are included. Discussion of traffic issues at anticipated buildout is included where appropriate.

This chapter concludes with potential system improvements, followed by specific proposals and recommendations.

Overview

Bedford is a largely residential community that is trying to balance its strong desire to retain a rural/suburban character as it maintains a vibrant and considerable commercial/industrial base. It is located in the northwest portion of the greater Boston metropolitan area, approximately 17 miles from downtown Boston (See Figure 8-1).

The reference point for measuring distances to other locations is the historic First Parish Unitarian Universalist Church, located at the intersection of South Road with The Great Road on Bedford's historic Town Common.

Roadway System

Bedford's surface roadway system reflects the long-established settlement pattern of the town (See Figure 8-2). The system is radial. Its hub is The Great Road, the town's main artery running through the center of town. It serves as the collector and distributor of traffic between two groups of radial systems, one emanating from its westerly end and the other from its mid-point. The Great Road also provides access to several concentrations of retail sales activity.

The radial system carrying traffic from the west and north consists of four roads: Concord Road, Carlisle Road, Chelmsford Road and North Road. They merge and form the Wilson Park triangle at the westerly end of The Great Road. Wilson Park, an important historical site, is the location for an annual parade and commemorative ceremony.

A similar less extensive and more spread-out radial system to the east begins at approximately the mid-point of The Great Road. It is made up of the following Roads, South Road, Hillside Avenue, Springs Road, Brooksbie Road and Shawsheen Road. The Great Road itself continues easterly into the adjoining town of Lexington and the Route 128 interchange, becoming Bedford Street as it enters Lexington.

There is no effective bypass around the town, especially in the east-west direction. The closest thing is Pine Hill Road/Page Road, a designated Scenic Road, which lies to the north and roughly parallels The Great Road. To the south of The Great Road is a potential second, but much more indirect, bypass route following Summer Street, South Road and Hartwell Road. This latter linkage of roadways could serve traffic between Concord Road and the Hartwell Avenue employment center in Lexington. However, the circuitous nature of this route and its congested intersections can result in longer travel times than using the standard Concord Road/The Great Road alternative. Also, this system serves only Concord Road, which is more lightly traveled than the Carlisle Road/Chelmsford Road/North Road system, and thus would have very limited potential as a bypass of The Great Road.

Employment Centers

There are five centers of employment in Bedford (See Figure 8-2).

The primary concentration is located in the northeasterly part of town between Route 3 and the Town's boundaries with Burlington and Billerica. The series of office and research buildings are typical in size and arrangement of those found in post-World War II developments around express highway interchanges. This area is currently experiencing extensive growth in the form of both development and redevelopment. There is an attendant major increase in traffic.

The second employment center, found on the south side of town, has four distinct sub-areas:

- Wiggins Avenue area: a series of office and research facilities;
- Hartwell Road area: a loop road from South Road to Concord Road;
- Hanscom Air Force Base/Hanscom Field: a joint military/civilian facility, which encompasses housing, the airport itself and extensive office space ("Hanscom Field complex"). Hanscom occupies portions of four towns: Bedford, Concord, Lincoln and Lexington, and;
- DeAngelo Drive area: approximately a dozen small buildings primarily housing professional offices.

The third employment center is located approximately one mile north of The Great Road, comprising the Edith Nourse Rogers Veterans Administration (V.A.) Hospital and Middlesex Community College, adjacent to the V.A. complex. The hospital serves approximately 900 inpatients and maintains an extensive outpatient clinic service. It also houses a research facility. Middlesex Community College serves approximately 4,000 commuting students who attend day and evening classes.

Fourth employment center is a group of municipal government buildings located in a complex off The Great Road. The new Town Hall, the police and fire stations, the library, Town Center building (housing the Council on Aging, the Recreation Department and rental space for nonprofit community organizations), the middle and high schools, playgrounds and playing fields create an active town center.

Finally, extensive commercial services and retail shopping facilities are located along The Great Road between the vicinity of the First Parish Unitarian Universalist Church and Shawsheen Road. They form three distinct shopping-center groupings, separated by residential dwellings.

Regional Public Transportation System

The town's links to the metropolitan Boston regional transportation network are particularly weak. The three elements of the system relevant to Bedford are commuter railroad, rail rapid transit and MBTA bus lines. They are depicted in Figure 8-1 and described below.

Rail Transit

The two forms of rail transit are the backbone of the regional public transportation system: the passenger railroad lines, commonly referred to as "commuter rail", and the transit lines, commonly referred to as "The T." Their routes radiate out from downtown Boston.

Commuter rail service extends as far out as the New Hampshire border to the north, Worcester to the west and Providence to the south. Bedford is located midway between the northwestern and western of these rail corridors.

- The more northerly Lowell Line passes through Woburn, Wilmington and Billerica. It has a station located near Route 128, in the Mishawum section of Woburn, over eight miles to the east of Bedford. Another station is in North Billerica, approximately the same distance to the north of Bedford. The Massachusetts Bay Transportation Authority (MBTA), the regional transit agency for greater Boston, has relocated the Mishawum Station a short distance east of its former location to a new interchange with Route 93, a radial expressway similar to Route 3 serving southeastern New Hampshire.
- The Fitchburg/South Acton Line, which heads toward Fitchburg and Gardner, passes through Waltham, Lincoln and Concord. It has a station off Route 128, near Brandeis University in Waltham, approximately 11 miles to the south of Bedford; and one station each in Concord and West Concord, approximately five and seven miles, respectively, to the west of Bedford.

The transit network fans out from downtown Boston for much shorter distances than the passenger rail system. The transit line closest to Bedford is the "Red Line," which passes through Harvard Square, extending to the Alewife station off Fresh Pond Parkway. This is adjacent to the eastern terminus of the limited access highway section of state Route 2, located at the Cambridge/Arlington municipal boundary, approximately 11 miles to the east of Bedford.

Bus Lines

The greater Boston metropolitan area is also served by a series of surface bus lines operated by the MBTA, most of which fan out from the various railroad and transit stations, two of which link Bedford with downtown Boston. Both run from locations in town to the Alewife rapid transit terminal. The Route 62 bus line runs through Lexington and Bedford to the V. A. Hospital. The Route 351 bus line runs express from the Alewife terminal through an office park adjacent to the Middlesex Turnpike, and then provides local service along Crosby Drive and Middlesex Turnpike to Oak Park Drive.

The Lowell Regional Transportation Authority (LRTA) has recently inaugurated two new bus routes. One of those routes connects downtown Lowell through the Middlesex Turnpike and the Sun Microsystems area to Mall Road, serving the Burlington Mall and the Lahey Clinic medical complex.

Local Public Transportation System

An on-demand, local bus service called the Bedford Local Transit, or “BLT”, uses an airport shuttle bus-sized vehicle to provide local transportation, primarily for handicapped and/or elderly citizens. It carries residents to destinations within Bedford and to the Burlington Mall.

From July 2000 till March 2001, the monthly ridership varied between 470 and 658, with an average 546. The most frequent users are senior citizens (around 60%), followed by the adult and handicapped population (both of these between 15% and 20% each). Most patrons ask for rides within town, and rarely take the mall ride.

Bikeways

The Minuteman Commuter Bike Path provides a combination of recreation and destination-transportation services. As its name suggests, it is reserved for non-motorized travel, primarily bicyclists, rollerbladers and pedestrians. Interestingly, the Bike Path provides the most direct link of any transportation system between Bedford and the central part of greater Boston. The Minuteman Bike Path uses the right-of-way of a former railroad that ran past the Alewife transit station to the vicinity of Concord center. The bike path itself terminates at the intersection of South Road with Loomis Street. The users have two choices beyond that point. There is an unpaved trail continuing along the right-of-way that offers pedestrians and mountain bikers access to Concord over which the Town eventually intends to extend the bikeway. The second option is to take the branch of the railroad right-of way that diverges here and goes northerly through Billerica and Tewksbury toward Lowell. The section of the right-of-way from the intersection of South Road with Loomis Street to the Billerica town line has been converted into the Narrow Gauge Rail Trail. Billerica has plans to eventually build a bike path on its section of the right-or-way, connecting with the Narrow Gauge that will be called The Yankee Doodle Bike Path.

Apart from these two important paths, bike lanes and secure bike racks are rare close to facilities such as public buildings, schools or shopping centers.

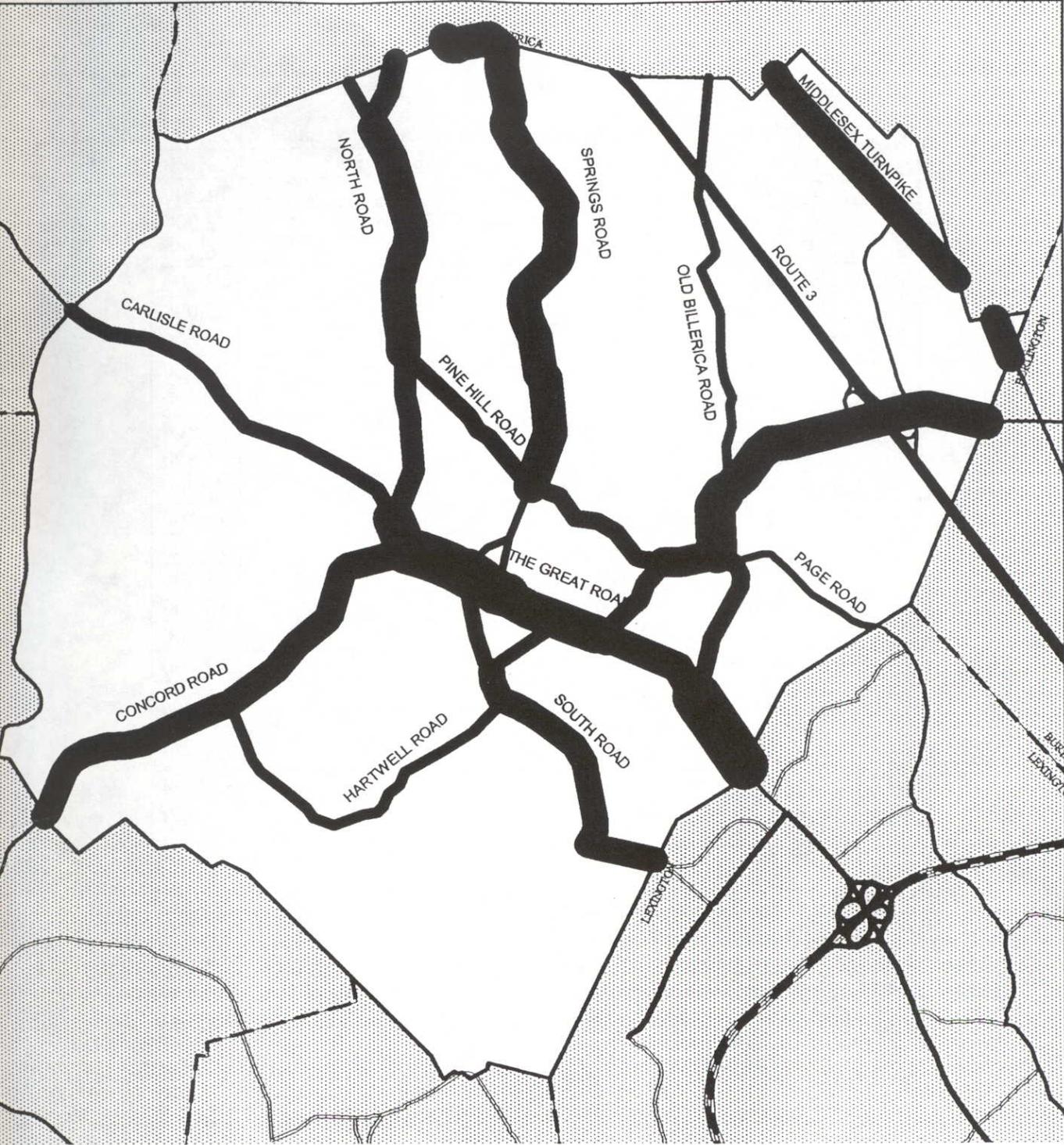
Travel Data and Analysis

Traffic Volumes

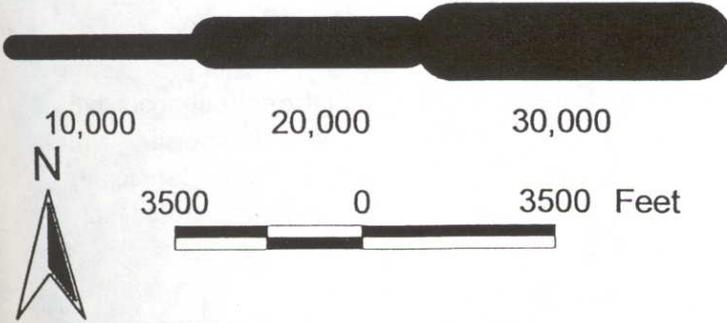
The main roadway system in Bedford consists of two-way arterial and collector streets with one travel lane in each direction. Such roads typically can carry between 11,000 and 14,000 vehicles per day with reasonable operating speeds. This level of traffic permits drivers to maneuver in and out of access drives and around parked or turning vehicles with only moderate risk and delay. When this kind of roadway carries greater numbers of vehicles, traffic becomes unduly congested, with long delays and limited freedom to maneuver. Residential streets that carry more than approximately 2,500 vehicles per day are considered to adversely affect residences. The assumption is generally made that they are no longer primarily serving local residents. The options then are to implement traffic calming or other measures to reduce the traffic volume to below 2,500 vehicles per day; or reconfigure the roadway with more travel lanes and/or special turn lanes, if possible, as has been done to the section of The Great Road between Brooksbie Road and Hillside Avenue.

Roadways divided by median strips with two more travel lanes in each direction, referred to as “urban arterials,” are able to handle higher volumes of traffic. Aside from Route 3, the only multi-lane road in Bedford is a short portion of Burlington Road, which was recently widened to four travel lanes plus turning lanes, associated with the Route 3 interchange. It is unlikely that the citizens of Bedford would permit any other such roads to be constructed in other areas of the town.

One of the most widely used indicators of the relative importance of roads within a community is the annual average daily traffic, sometimes referred to as “ADT.” Average daily traffic estimates were made for the major roadways serving Bedford. These estimates were derived from a review of studies made for various projects that have been proposed within Bedford, including roadway improvements and subdivision or similar developments. That data has been updated to reflect estimated conditions for the year 2000. The tabulation of traffic volumes is shown in the following table. The data are also displayed in Figure 8-3. The highest traffic volumes are on The Great Road and North Road.



Source : Traffic counts and projections from various traffic studies



**TOWN OF BEDFORD
COMPREHENSIVE PLAN**

Figure 8-3 Estimated Road Traffic Volumes
(Average Daily Traffic)

Produced by the Bedford Planning Board
June 2001

The information depicted on this map is for planning purposes only.
It is not adequate for legal boundary definition or regulatory interpretation.

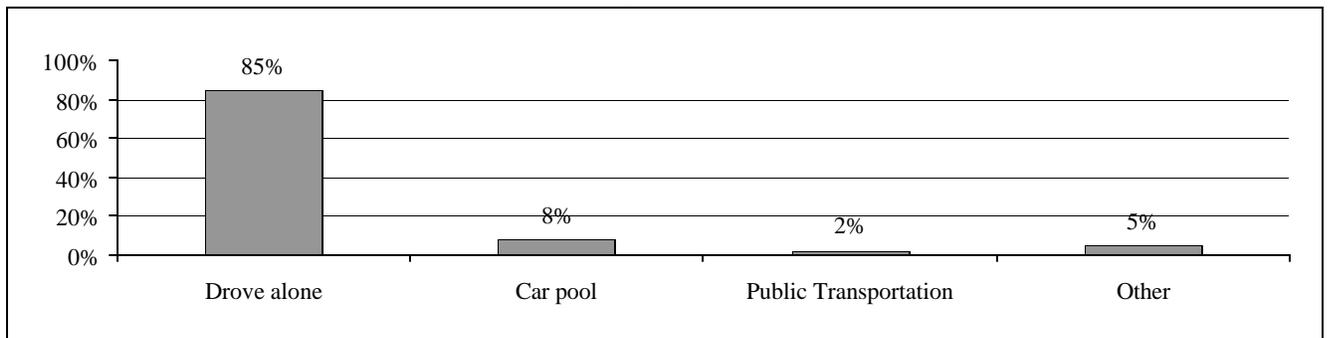
**Estimated Average Daily Traffic (ADT) Volumes on Major Roadways
Within the Town of Bedford in CY2000**

	<u>Location</u>	<u>Est. AADT</u>
1	On Route 3 at the Shawsheen River crossing	76,800
2	On The Great Road at the Lexington Town Line	24,200
3	On The Great Road immediately west of Shawsheen Avenue	15,400
4	On The Great Road immediately west of Brooksbie Road	19,100
5	On The Great Road immediately west of Hillside Avenue	22,900
6	On The Great Road immediately east of Wilson Park	23,100
7	On Summer Street at Wiggins Avenue	14,700
8	On Wiggins Avenue at the Minutemen bike path	2,900
9	On Wiggins Avenue at Ashby Road	6,700
10	On South Road at DeAngelo Drive	12,700
11	On South Road at The Great Road	8,000
12	On Loomis Street at DeAngelo Drive	7,400
13	On Hartwell Road at Independence Road	6,300
14	On Railroad Avenue at Highland Avenue	1,600
15	On Concord Road at Wilson Park	13,200
16	On Concord Road at Hartwell Road	14,800
17	On Davis Road at Hillcrest Road	1,200
18	On North Road at Wilson Park	20,100
19	On North Road at Carlisle Road	11,600
20	On North Road at Pine Hill Road	17,300
21	On North Road at Chelmsford Road	12,100
22	On Carlisle Road at North Road	8,300
23	On Chelmsford Road at North Road	7,400
24	On Page Road at Wilson Road	4,500
25	On Page Road at Old Billerica Road	10,700
26	On Page Road at Brooksbie Road	15,200
27	On Page Road at Springs Road	8,700
28	On Pine Hill Road at North Road	9,000
29	On Springs Road at Hillside Avenue	4,100
30	On Springs Road at the V.A. Hospital	17,300
31	On Hillside Avenue at Springs Road	4,300
32	On Brooksbie Road at Page Road	10,300
33	On Shawsheen Road at Page Road	9,200
34	On Old Billerica Road at Page Road	20,500
35	On Old Billerica Road at Wagon Wheel Drive	5,500
36	On Burlington Road at Meadowbrook Road	18,400
37	On Middlesex Turnpike at the Shawsheen River crossing	14,400

Travel By Bedford Residents To Their Workplaces

Work trips place the heaviest demands on transportation systems serving metropolitan areas and towns like Bedford. They are responsible for creating the peak traffic loads in the morning and afternoon known as “rush hours.” This and the next section describe the relative importance of the different transportation modes and of the various roadways in accommodating present day work trips to work centers within Bedford, by both residents and nonresidents.

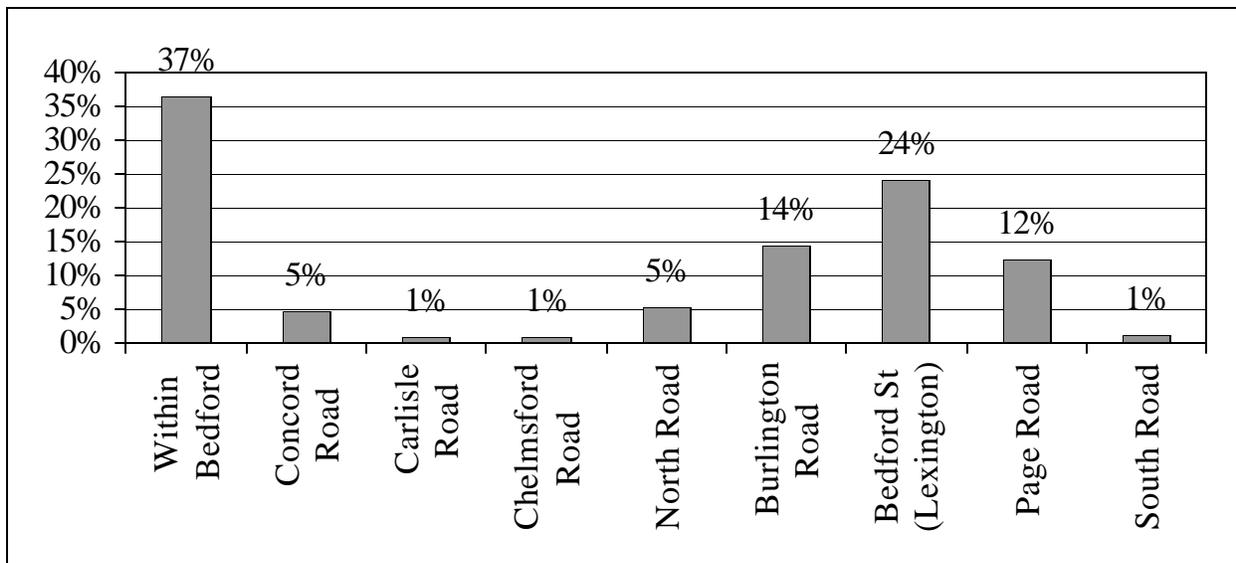
Primary Transportation Mode Used by Residents of Bedford to Reach their Workplace



Source: 1990 Census

This chart shows the supremacy of the car over other transportation modes. Still, it is important to distinguish car-pooling from driving alone, and to note the fact that almost 10 percent of those who travel by car shared the drive with co-workers.

Estimated Road Traveled by Residents of Bedford to Reach their Workplace

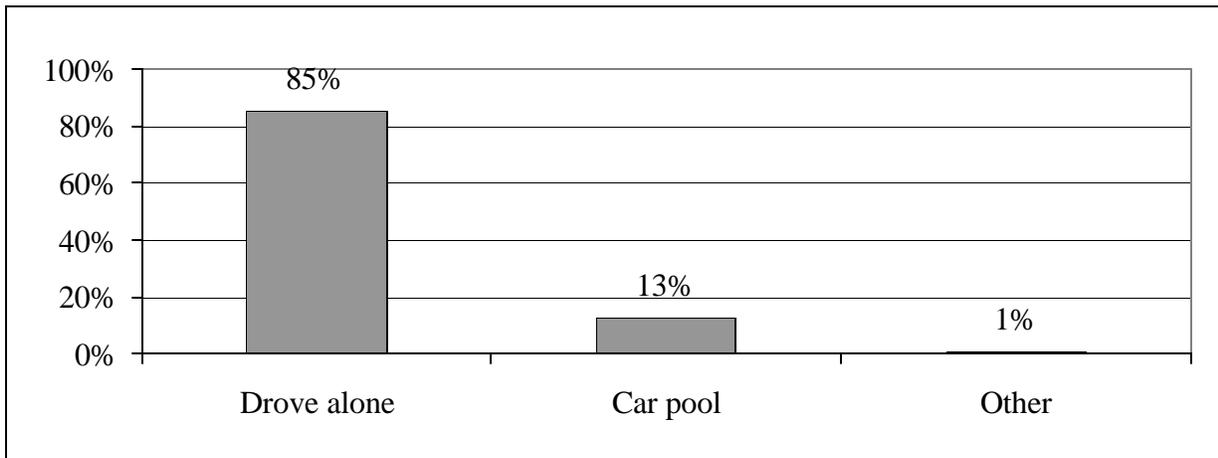


Source: 1990 Census

Travel by Non-Residents to their Workplace in Bedford

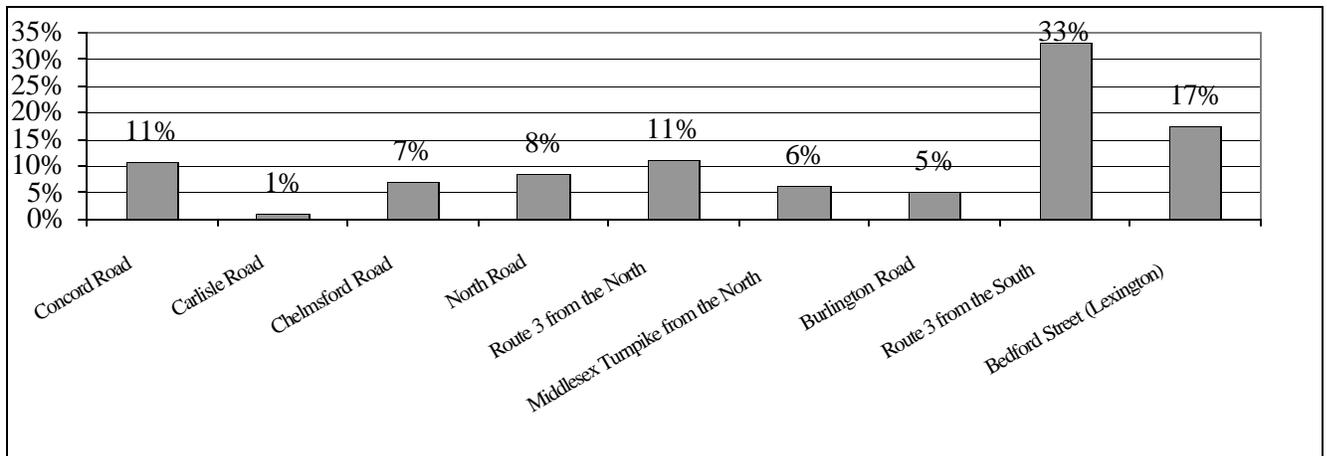
The 1990 Census data for “Journey to Work” trips has been aggregated by the Metropolitan Area Planning Council (MAPC) to report the number of trips to each town or destination listed and the mode of private or public transportation services that incoming commuters used to reach employment centers within the town.

Primary Transportation Mode Used by Nonresidents of Bedford to Reach Employment Locations in Bedford



Source: 1990 Census

Estimated Road Traveled by Nonresidents of Bedford to Reach Employment Locations in Bedford



Source: 1990 Census

Future Travel Patterns by Non-Residents to Their Workplace in Bedford

This section predicts the traffic volumes and travel pattern, based on current trends that will exist when employment centers in Bedford reach full development at buildout. It was assumed that employment growth in the south Bedford and the Crosby Drive/Middlesex Turnpike areas would be proportional to their potential changes in floor area, and that office activities would continue to be the predominant use. A figure of 250 square feet of floor area per employee was used to predict the number of employees. This is a typical planning standard for office developments.

The employment centers for local government, the V.A. Hospital and Community College are not expected to experience significant growth and are therefore not included in the table below. Retail is the predominant growth assumed for The Great Road area. A breakdown of the present numbers and the changes in employment patterns at buildout is displayed in the table below.

Estimated Employment Levels in Bedford: at Present and as Projected at Buildout

Location	Present Conditions		At Buildout	
	Employees	%	Employees	%
South Bedford	5,000	29.4	10,100	33.3
Crosby Drive/Middlesex Turnpike	8,000	47.1	15,700	51.8
The Great Road/Springs Road	4,000	23.5	4,500	14.9
Total	17,000	100.0	30,300	100.0

The number of work trips and travel direction information were developed from data supplied by a number of the major employers in Bedford. The ZIP codes of the residences of current employees were assigned to the Bedford roadway that a driver most likely would use to reach his or her place of employment. Assignments then were made to the various roadways in proportion to the present or projected total employment in the various employment centers as reported in the table above. These assignments were made without regard to potential capacity limitations or congestion delays on a particular roadway.

It was assumed that each employee would drive to work independently, as is generally the case today, and would not carpool or use other means of transportation, such as bus or bicycle. Although this probably overstates the reliance on privately operated vehicles by approximately two percent (based on the Zip Code data described above), this does not appear to create unacceptable inaccuracy, since the purpose of this analysis is to determine the relative importance of each of the various roadways serving the town and not to predict an exact number of person-trips on each roadway.

A comparison was then made between the 1990 estimates and the estimated travel demand that will exist when the employment centers are fully developed. In order to make the data comparable, minor adjustments to the 1990 data were required.

A reduction in the sample size from 20,855 to 20,462 was made to factor out people using public transportation (because comparable data was not available from the 1999 survey) and travel

estimated in 1999 to use Routes 2 and 2A was assumed to split, with half being assigned to Concord Road and the remaining half assigned to Route 128 from the south.

Capacity Pressures on Major Roads at Buildout

Each of the main entry roads into Bedford was analyzed, for present conditions and at projected buildout, to determine its relative importance in carrying traffic to the town's major employment centers. Estimates of vehicle trips to work centers on each of these roadways in 1990 and as projected at buildout are displayed in the table below. These estimates are not intended to represent the traffic volumes found on that roadway, but they can suggest an order of magnitude of the relative change and the capacity pressures on the roadway system that serves Bedford work centers.

Employment Based Travel Demands on Bedford's Roadways: 1990 Estimates and as Projected at Buildout

Roadway Used	1990 Census		At Buildout		Change	Change
	# trips / % of total		# trips / % of total		#	%
Concord Road	2,650	11	3,350	11	+620	+23
Carlisle Road	240	1	610	2	+360	+150
Chelmsford Road	1,690	7	910	3	-780	-46
North Road	1,930	8	3,950	13	+1,920	+99
Route 3 from the North	2,650	11	5,480	18	+2,750	+104
Middlesex Tpke from the North	1,450	6	300	1	-1,160	-80
Burlington Road	1,210	5	2,740	9	+1,470	+121
Bedford Street (Lexington)	4,350	18	6,390	21	+2,040	+47
Route 3 from the South	7,960	33	6,390	21	-1,570	-20
Page Road	~10	<1	300	1	+290	+2900
Totals	24,140	100.0	30,420	100.0	6,280	+26

The travel demand comparison is displayed in the table above and their percentages are depicted in Figures 8-4 and 8-5. Not surprisingly, the buildout data forecasts substantially more trips on most of the major roadways. The possible exceptions appear to be Chelmsford Road and the Middlesex Turnpike from the northerly direction, and Route 3 from the southerly direction. (It is possible, however, that those roadways will not realize anticipated declines, because they would be available to relieve the congestion on adjacent roadways). Four of the travel directions are anticipated to have increases in excess of 1400 trips, among which North Road, Burlington Road, and The Great Road / Bedford Street should warrant particular attention.

Accident Experience

Analysis of All Accidents Reported

Using source material from the Bedford Police Department, motor vehicle accident statistics in Bedford for calendar year 1999 were analyzed. The accident data was reviewed for indications that some sort of remedial action could be taken to effectively reduce or eliminate accidents at

specific locations. There were a total of 300 accidents. Twenty-six percent occurred along The Great Road or at intersections of that road with other streets. North Road, next most frequently experiencing accidents, had only one-third as many (26). An additional twelve Bedford roadways experienced two or more accidents in any one-month.

Five accidents of the same type at a single location during a twelve month period is usually used as an indicator of a situation that warrants further study. The large number of accidents along The Great Road and the concentration of these accidents at particular intersections would normally suggest that there are several locations along that roadway that warrant further study.

Similar levels of accidents also occurred along the Middlesex Turnpike at its intersection with Crosby Drive and at its intersection with Plank Street. Improvements and realignments are already underway (or at least planned) at these locations. The Page Road intersection with Old Billerica Road appears to be problematic, especially during heavy traffic hours and warrants closer scrutiny.

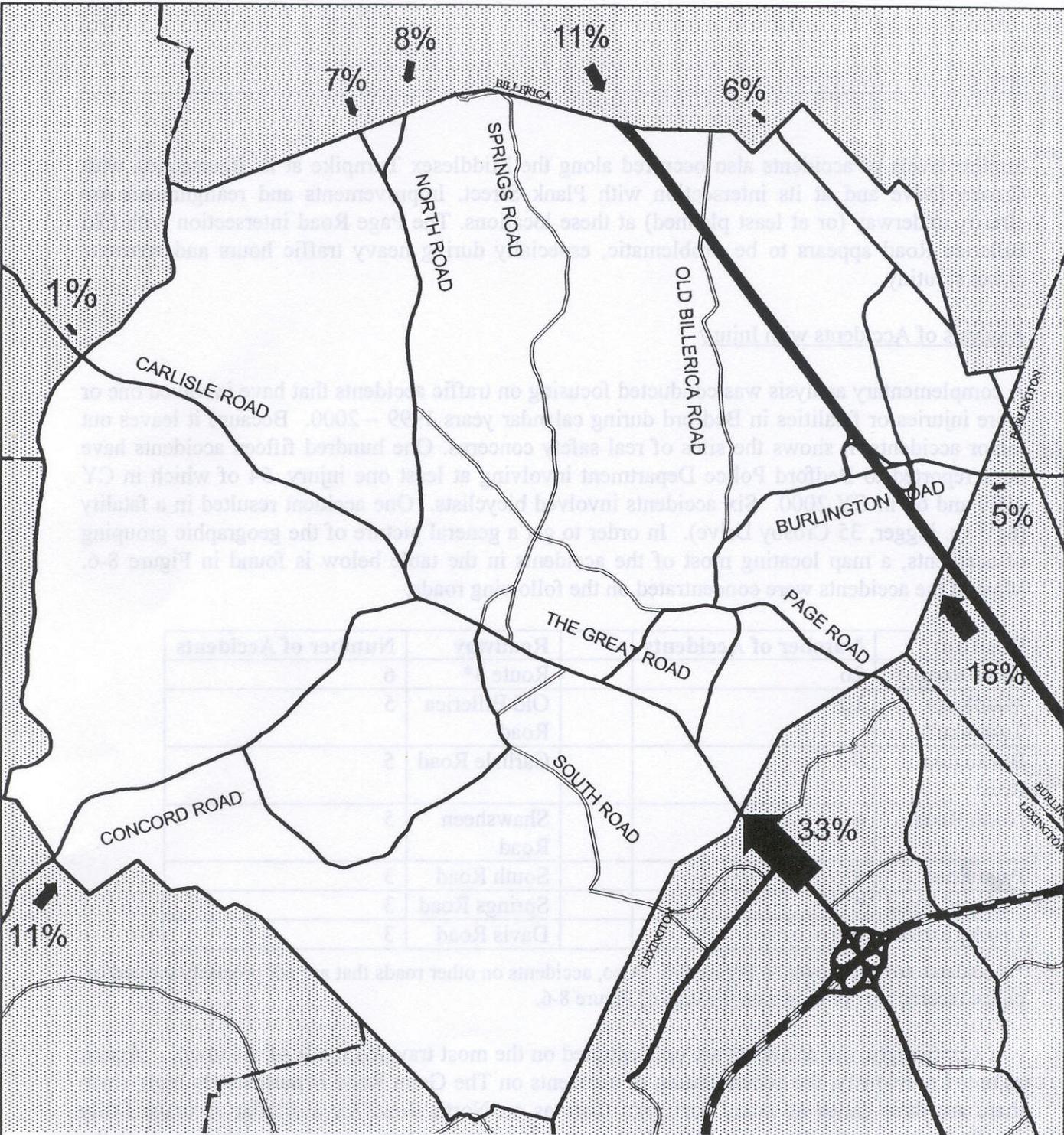
Analysis of Accidents with Injury

A complementary analysis was conducted focusing on traffic accidents that have involved one or more injuries or fatalities in Bedford during calendar years 1999 – 2000. Because it leaves out minor accidents, it shows the sites of real safety concerns. One hundred fifteen accidents have been reported to Bedford Police Department involving at least one injury, 54 of which in CY 1999 and 61 in CY 2000. Six accidents involved bicyclists. One accident resulted in a fatality (MV vs. jogger, 35 Crosby Drive). In order to get a general picture of the geographic grouping of accidents, a map locating most of the accidents in the table below is found in Figure 8-6. Most of the accidents were concentrated on the following roads:

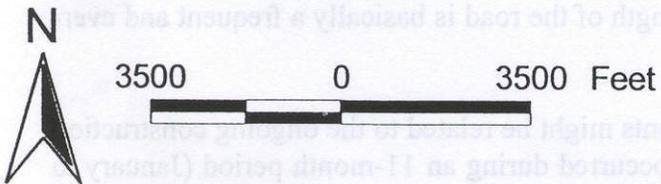
Roadway	Number of Accidents		Roadway	Number of Accidents
Great Road	26		Route 3*	6
Middlesex Turnpike*	10		Old Billerica Road	5
Burlington Road	9		Carlisle Road	5
North Road	8		Shawsheen Road	5
Page Road	8		South Road	3
Concord Road	6		Springs Road	3
Crosby Drive	6		Davis Road	3

* Accidents are not shown on Figure 8-6. Also, accidents on other roads that are not precisely located in police records are not shown on the map of Figure 8-6.

Not surprisingly, the accidents are concentrated on the most traveled roads of the town. Again, as noted previously, the accumulation of accidents on The Great Road is particularly high, since there are three times as many accidents there as on North Road for a similar Average Daily Traffic Volume estimate in CY 2000. If the great number of intersections and activities along the



Source : 1990 Census Data aggregated by the MAPC

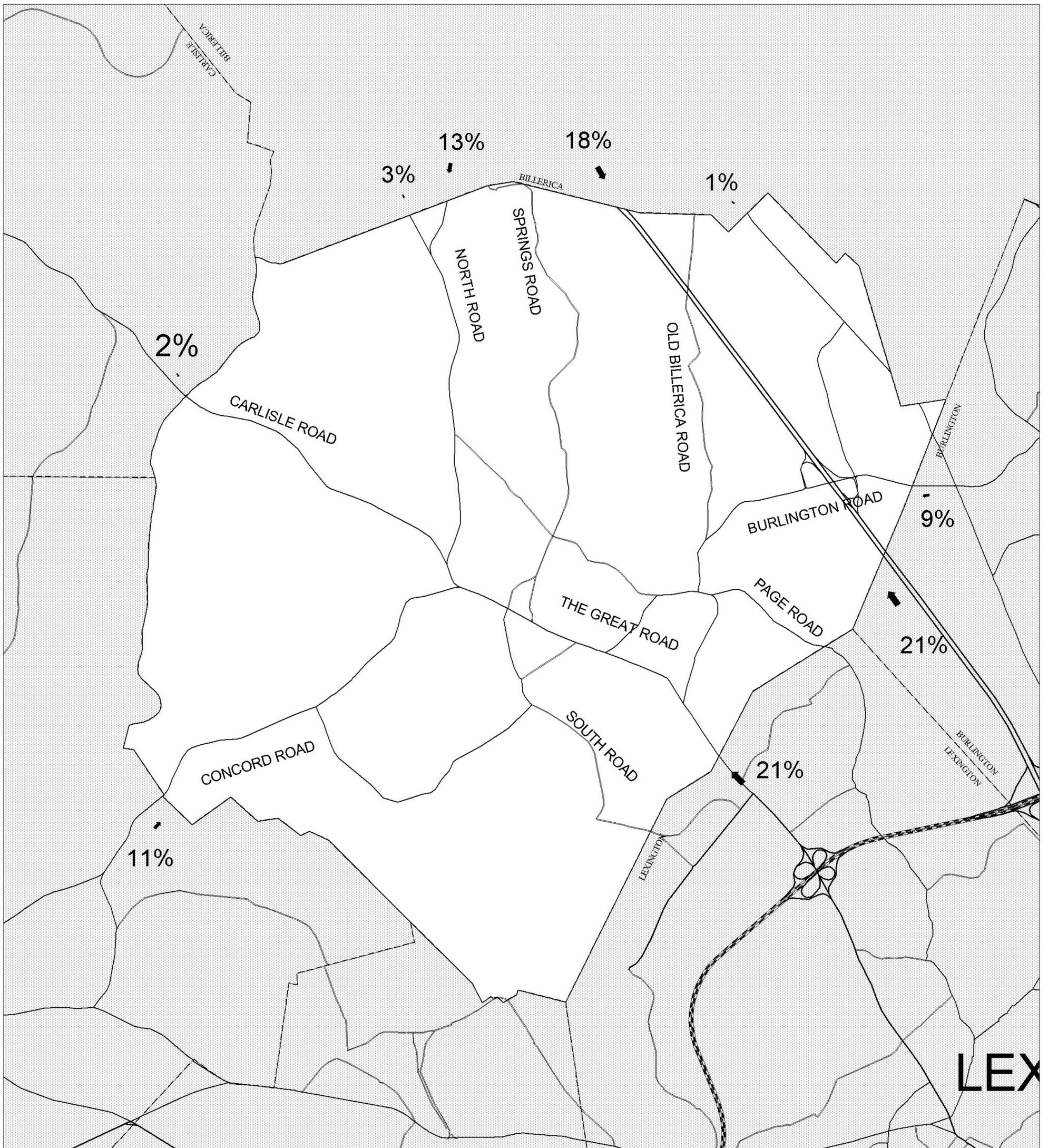


The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition or regulatory interpretation.

**TOWN OF BEDFORD
COMPREHENSIVE PLAN**

**Figure 8-4 Travel Directions of Employees
to Employment Centers in Bedford - 1990**

Produced by the Bedford Planning Board
June 2001



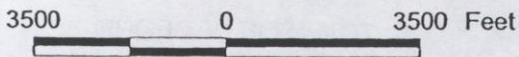
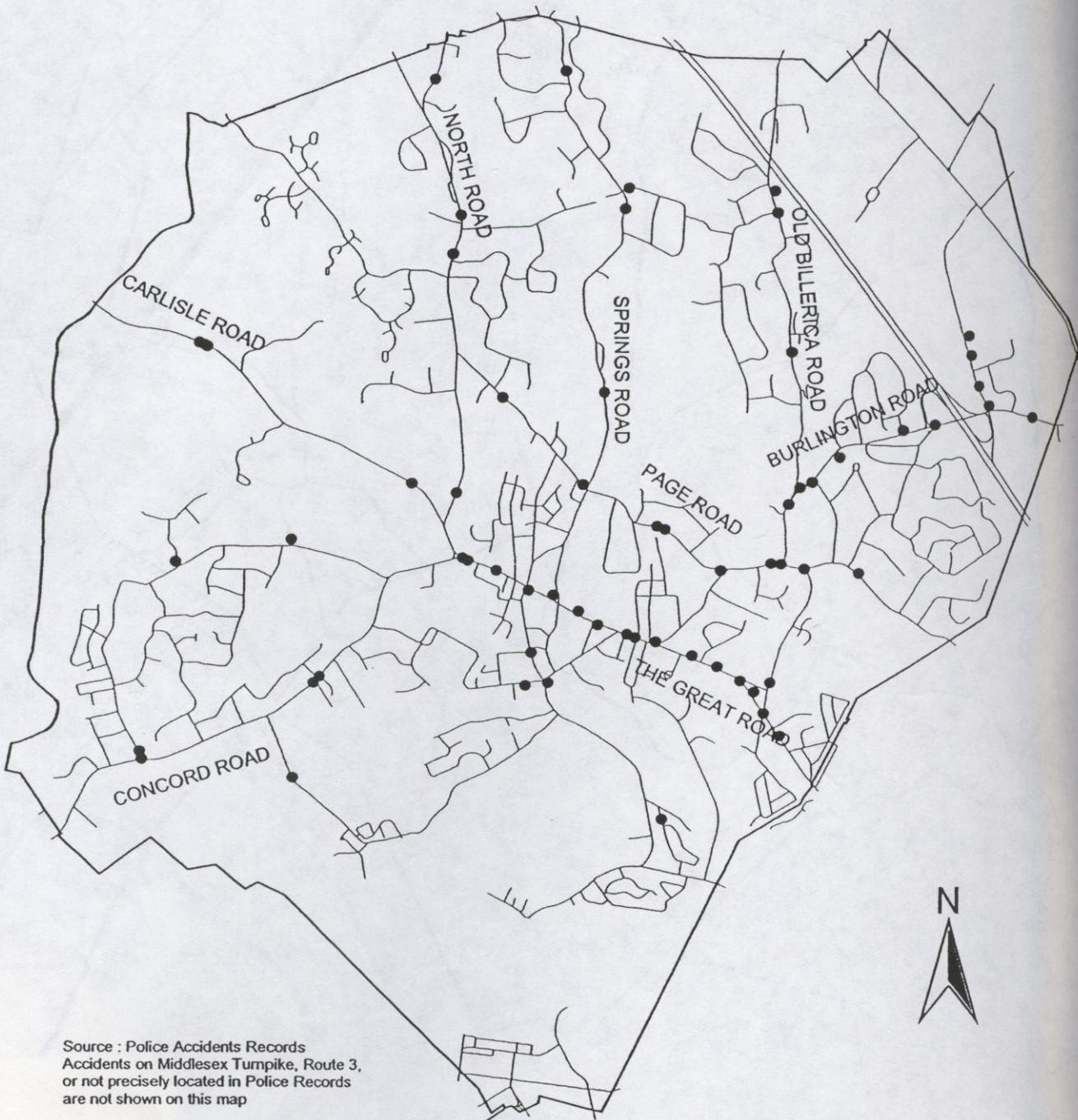
3500 0 3500 Feet

**TOWN OF BEDFORD
COMPREHENSIVE PLAN**

**Figure 8-5 Travel Directions of Employees
to Employment Centers in Bedford at Buildout**

**Produced by the Bedford Planning Board
June 2001**

The information depicted on this map is for planning purposes only.
It is not adequate for legal boundary definition or regulatory interpretation.



TOWN OF BEDFORD COMPREHENSIVE PLAN

Figure 8-6 Traffic Accidents 1999 - 2000
 Involving Injury or Fatality

Produced by the Bedford Planning Board
 June 2001

The information depicted on this map is for planning purposes only.
 It is not adequate for legal boundary definition or regulatory information.

road can partly explain this, it is not a mere question of a few intersections being at fault. From Gray Terrace to Wilson Park, the whole linear length of the road is basically a frequent and ever-potential site of accidents.

It had been suggested that this high rate of accidents might be related to the ongoing construction work. Eleven of the 26 reported accidents have occurred during an 11-month period (January to November 1999), the remaining 15 during a 13-month period after the construction was completed (December 1999 to December 2000). These figures seem to indicate that there was no correlation between the construction work and the accidents rate. A monitoring of these accidents should still be continued, as during the first months of the completion, a few accidents, but probably not a significant number, might have been due to drivers unfamiliar with the new design of the road.

Other important sites of injury accidents include Burlington Road and Crosby Drive, Concord Road and Davis Road, Shawsheen Road, North Road and Page Road that might call for continued assessment and potential remedy.

The western intersection of Concord Road and Davis Road has particularly little visibility, because of the curve on one side and a 'high point' on the other. This may suggest modification to the intersection or the installation of warning devices. Of the 8 accidents occurring on North Road, it is to be noted that none of these occurred at the intersection with Pine Road, where the visibility is fairly good. Furthermore, more accidents seem to take place on the eastern Page Road section of the Pine Hill / Page Road section, which has a curved and undulating alignment. This may suggest the need for the installation of warning signs.

Bicyclists at Risk

Bicyclists using roadways can be more exposed to injuries (and more severe injuries) than car occupants. Some of them, children for instance, are also less aware of the safety concern. Adult bicycling safety on the major town roads depends on both car and bicycle operator alertness and attention to traffic laws. In particular, awareness by motor vehicle operators of the legal rights of cyclists to use all town roads in a safe manner should be promoted, using for example "Share the Road" sign campaigns.

The six accidents involving bicyclists took place at following locations: Railroad Avenue, The Great Road @ Elm Street (2), Davis Road, 358 The Great Road, and 266 Carlisle Road. It can be noted that the first three of these accidents occurred in the central part of the town, which hosts the type facilities that attract bicycle traffic, and where bicyclists arriving at the end of the Narrow Gauge Rail Trail and of the Minuteman Bikeway suddenly enter general traffic. It is also to be noted that the intersections of these bikeways with regular roads are often poorly marked and rarely signaled, so that the car driver is not given a proper warning of the crossing until he drives through it.

Potential System Improvements

Anticipated Worsening of Traffic Problems

Traffic problems in Bedford, already substantial, will continue to grow worse based on factors both within and outside of Bedford's control.

Many people will continue to be drawn to live in Bedford, because it is a charming rural-suburban community with good schools and services, because of its location relative to Boston and because of the ample employment opportunities in and around the town. Therefore, the likelihood is that residential construction, especially in the north and west of the town, will continue, perhaps in substantial numbers.

Also, employment opportunities throughout the Boston metropolitan area are expected to increase. In fact, current estimates for the region are that within the next 25 years, the number of households in our region will increase by 15 percent, employment will increase by 31 percent and the daily number of auto trips will increase by 19 percent. This will add a significant amount of traffic to Bedford roadways.

Constraints to Improvement in the Roadway System

The Town of Bedford faces some very real constraints concerning its ability to make improvements to its roadway system. The critical impediment for Bedford in handling its traffic problems is the extraordinarily limited number of options available to add additional capacity to roads that currently are at or soon will be reaching or exceeding capacity standards.

The roadway system consists of pavements ranging from approximately 22 to 28 feet in width and accommodating only one travel lane in each direction. Exceptions are sections of The Great Road, and the future roadway configurations at the Crosby Drive/Burlington Road/Middlesex Turnpike nexus and approaches to certain intersections where the pavement has been widened to add designated turning lanes.

The traditional solution to easing traffic congestion and reducing travel delays during peak travel times is to widen the roadway or to remove curbside parking or a combination of the two, to provide additional peak hour travel lanes and/or turning lanes. Funds for such roadwork are scarce at the state level and Bedford residents are reluctant, if not unwilling, to sacrifice the character of the town by significantly widening roadways, even if funds were readily available. Finally, because of the historic nature of the road system, much of it lined with residential properties, there still really would be no practical way to widen some of them—even the most congested—should money be available and residents willing. Consequently, Bedford faces the problem of having congested roadways so narrow as not to permit the creation of additional travel lanes or special turning lanes.

Potential Improvements to the Roadway System

Despite these constraints, there are opportunities that should not be missed to reduce congestion and improve safety on the roads.

Route 3/Route 128 Interchange

The present interchange configuration can not handle most peak hour conditions with traffic at a standstill on some ramps that backs up onto roadways further impeding traffic flow. If there is an accident on one of the roadways dangerous backups occur on all travel lanes in the affected direction. When such a condition occurs local police notice substantial increases of vehicles caused by traffic bypassing the expressway system creating dangerous congestion on already overloaded local roads. Local officials also notice substantial daily commuter traffic using local roads instead of using the Route 3 and Route 128 interchange. Current plans do not include an upgrade to the interchange. With increased lanes from Route 3 entering the interchange it is doubtful whether it will be able to handle the anticipated increases in traffic volumes. As a result local residents expect to see the peak traffic period lengthened rather than reduced. Certainly without some improvement to the interchange the people of Bedford are not likely to see the reductions of traffic anticipated on the local roads by the Route 3 widening project.

The Wiggins Avenue Extension

One opportunity to improve traffic flow within the center of Bedford is the currently planned Wiggins Avenue extension. Wiggins Avenue is essentially a dead-end street with a heavily traveled “relief valve” to the Walsh Road/Ashby Road one-way loop system. This loop was designed to serve only the neighborhood but now acts as the conduit between an office/research employment complex and The Great Road. The intended main access for Wiggins Avenue is at its southern end at Summer Street, with connections to South Road/Loomis Street in Bedford and Bedford Street/Hartwell Avenue in Lexington. Proposals had been developed to extend the northern end of Wiggins Avenue either directly to South Road or to Loomis Street. The South Road proposal was rejected several years ago because of extensive wetlands issues.

The extension of Wiggins Avenue to Loomis Street by way of DeAngelo Drive appears to be feasible and would provide a significant reduction in congestion along The Great Road as well as providing relief to a residential neighborhood. It would divert and disperse the Wiggins Avenue traffic by providing a second travel path for vehicles with origins or destinations along both Wiggins Avenue and DeAngelo Drive. Traffic exiting Wiggins Avenue towards The Great Road or towards Hartwell Road would then be directed through signalized intersections onto their paths out of Bedford. The town can then consider the advisability of closing the connection between Wiggins Avenue and the Walsh Road/Ashby Drive loop except to bicycles and pedestrians.

The Intersection Improvements Program

Following intersections in town are particularly critical from a congestion or safety point of view, or both: Page Road and Pine Hill Road, Page Road and Shawsheen Road, Page Road and Old Billerica Road, South Road and Summer Street, Old Billerica Road and Burlington Road, Concord Road and Davis Road, The Great Road and Elm and Fletcher Streets, as well as The Great Road / Concord Road / North Road intersection (Wilson Park).

After this list is confirmed or amended and a priority ranking is established, these intersection improvements should be scheduled.

Complementary steps should be taken to limit the number of intersections, by controlling and reducing the number of curb cuts whenever it is possible.

Potential Improvements to Regional Public Transportation

The town faces daunting challenges in trying to encourage greater use of public transportation, because public transportation services are remote and limited. Nonetheless, some modifications to the roadway and public transportation systems can be made that will ease traffic congestion and provide better transportation service to Bedford's residents, employees and visitors.

Constraints to Improvement in the Regional Public Transportation System

It is unlikely that the Commonwealth will fund major improvements to either the commuter rail or transit systems that can provide significant benefits to those traveling to or from Bedford. Therefore, the passenger railroad stations at North Billerica and West Concord are the best candidates to provide commuter service to Bedford, but they are each approximately a 20-minute drive from the Town Common. The North Billerica station is newer and better appointed than the West Concord station, but access to it is even more indirect than to West Concord. To get there, a commuter must pass through Billerica Center and travel further away from downtown Boston. Although the Concord Center station is closer than West Concord it lacks sufficient parking or prospects for additional parking.

Regional Bus Transportation

There is an opportunity for improvement in the bus transportation system. The two MBTA bus routes presently serving Bedford could serve as a backbone for connections to a possible local transit system (see below). Also possible is reducing the service intervals on those routes. This would be most likely if ridership increases. Unfortunately, ridership is unlikely to increase unless the frequency of service is increased first. It may be possible to do this as a "pilot" or trial program.

The Lowell Regional Transportation Authority (LRTA) route that connects downtown Lowell through the Middlesex Turnpike and the Sun Microsystems area to Mall Road has the potential to provide an interconnection between the M.B.T.A. Route 351 service and a possible local bus

system (see below) at Sun Microsystems. Such interconnections there and elsewhere could serve as sub-regional transportation nodes in a network of connecting local shuttle services.

Potential Improvements to Local and Sub-Regional Public Transportation

The Central Transportation Planning Staff, the technical arm of the Boston Metropolitan Planning Organization, is currently engaged in a “MAGIC Carpet Study” investigating the potential for deployments and interconnections among the local shuttles (such as our Bedford Local Transit) of neighboring towns. The towns of Bedford, Burlington and Lexington operate independent local shuttle bus service systems. If linked, these services could create a broad local circulation system that provides interconnecting service among the three municipalities, and possibly Billerica, Carlisle and Concord.

A further desirable enhancement would be to connect this broader local system to the regional bus service systems that go to Boston and Lowell. An area near Sun Microsystems and near The Great Road Shopping Center on The Great Road are good locations for interconnections in Bedford.

Bedford should review the possibility of developing such a cooperative routing system with adjacent municipalities and the area’s major employers. This would provide an alternative transit service for the public, especially for those in the employment centers, and reduce reliance on privately owned vehicles for local trips.

Potential Improvements to Bicycling and Sidewalk Systems

“Share the Road” Sign Campaign

Increasing awareness of the rights and responsibilities of bicyclists to use town roads can help foster greater bicycling for recreation, commuting and other purposes. A number of towns in the Commonwealth have begun to establish “Share the Road” sign campaigns to develop a greater level of motor vehicle operator alertness towards bicyclists.

The Bikeway System

Bike paths are important elements of Bedford’s transportation infrastructure that offer significant opportunity to improve mobility for our citizens. The Minuteman Commuter Bike Path and its branch, the Narrow Gauge Rail Trail extending northward to the Billerica town line, already provide bicycle and pedestrian access to many public properties in town and function as an effective wildlife corridor connecting habitats and open spaces.

This resource can be enhanced by linking these two bike paths as part of the Depot Park Project, extending the bike path along the westerly branch of the town owned former railroad right-of-way from South Road to Concord Road or to the Concord town line (the “West Bikeway”), providing bike racks at several appropriate locations in town and improving the safety of the bicyclists when they have to drive out of the bike paths.

Sidewalks

Bedford has an extensive, if disjointed, network of sidewalks. Many were installed in connection with the development of residential subdivisions. Many others provide service to business centers and schools. The sidewalk system has a strong potential to be an effective circulation system for people within the town and, to a lesser extent, a linkage between Bedford and other towns via the various bike paths. This system can provide a very effective alternative to the use of the automobile for short trips especially during the spring, summer and fall months. However, in a number of important locations, sections of the sidewalk system are missing in what otherwise could be an extended and interconnected system.

A Sidewalk Map in Bedford's Open Space and Recreation Plan identifies the work to be done. The town's ad hoc Sidewalk Committee should be supported in their efforts to prioritize and obtain funding for an achievable program of sidewalk projects.

Transportation Demand Management (TDM) Alternatives

There are a number of employer-based measures that can be used to encourage people to use alternatives other than individually driven automobiles to get to and from work. The federal government encourages most of these through tax incentives. Vanpools and company sponsored shuttles are common solutions implemented by Transportation Management Associations (TMAs), some of which serve only one company while others are cooperative ventures of several companies. Commonly, these operate shuttle bus systems to and from public transportation terminals and employment centers. Bedford should actively encourage the development of these associations among its larger employers.

The possibility of engaging such systems in a private/public partnership with the municipal shuttle systems as were discussed in the Local Sub-Regional Public Transportation section of this plan should be explored. It may also be possible to extend shuttle systems currently in use along Route 128 to serve employment centers in the Bedford area or to create additional shuttle systems to commuter rail and rapid transit terminals. A combination of employer subsidized fares for employees and cash fares from the general public may be able to raise the ridership on these systems to the level where they are truly self sustaining. Such public/private co-sponsorship of a network of shuttles would be a unique undertaking and would require significant support from Bedford's industrial and commercial sector.

Carpooling showed some potential in the 1990 Census report. That report indicated that approximately 13 percent of people commuting to work centers in Bedford were members of a carpool. The data indicates that most of those people were either residents of Bedford or communities north of Bedford who used Route 3. It appears that an effort to develop a car matching and carpooling system can meet with success. It is primarily an issue of data gathering and correlation coupled with appropriate employee incentives. The town should encourage and facilitate this approach.

It may be feasible to require more effective transportation demand management action through zoning. New provisions strengthening TDM may be instituted through a zoning bylaw amendment that applies to approval of new or additional floor space. Restricting free parking for all new developments or for redevelopments that ask to enlarge floor areas could be immediately and significantly effective.

Proposals and Recommendations

8-1. Promote and Sponsor Transportation Demand Management

Institute a formal program for establishing shuttle services and carpooling, operated or substantially funded by major employers in Bedford, to reduce traffic congestion and improve employee access to jobs within Bedford. The program could be started with or expanded to the towns of Billerica and Burlington through the “Tri-Town Committee,” the cooperative structure the three towns have established. It could have both voluntary and regulatory components. A zoning bylaw amendment that establishes stricter guidelines for new or additional office space would define requirements for a Traffic Demand Management program.

8-2. Promote Park and Ride Facilities

Promote park and ride facilities in order to encourage the use of bus and shuttle transportation. Use existing parking space in town for small (10-15 cars) park and ride lots such as the Stop and Shop parking lot, which is generally under utilized when commuters would be using the lots.

8-3. Facilitate the Use of Bikes in Town

Construct the “West Bikeway” from the intersection at South Road (Depot Park) to Concord Road along the town owned right-of-way, whether or not it is extended in Concord. Install bike racks close to the access of public buildings and shopping centers. Improve the signalization and signing of the intersections of the bike paths with roads. Establish a “Share the Road” signage campaign to improve motor vehicle operator awareness of the rights and responsibilities of bicyclists. The DPW should work with the Bicycle Advisory Committee to determine appropriate sign content, size and location.

8-4. Plan an Intersection Improvements Program

Establish a priority ranking among the critical intersections, fund and schedule the necessary constructions. Investigate traffic calming techniques for potential implementation at appropriate intersections. Traffic calming techniques include more visible roadway markings (e.g., at crosswalks), “raised crossing” construction (gentler speed bumps), or other physical roadway improvements to reduce traffic speed at locations with relatively high pedestrian and/or non-motorized vehicle activity.

8-5. Construct Missing Links in Sidewalk System

Maintain an active sidewalk construction program. Focus on the missing links in the existing network of sidewalks. Priority should be given to constructing loops that would make the system continuous. This would enhance safety and foster its use. Where possible, maintain the rural character of neighborhoods when constructing sidewalk links through careful consideration of routes, materials and overall impact on area natural resources.

8-6. Develop Public Transportation Terminals

Develop one or more public transportation (shuttle) terminals to provide linkages between various MBTA bus routes, the LRTA route 19, and existing and new municipal and/or TMA sponsored shuttles, in the vicinity of Network Drive and at other locations, as appropriate.

8-7. Carry Out a Safety Program on Bedford Roads

Improve the record keeping associated with motor vehicle accident data to facilitate meaningful statistical and GIS analyses, conclusions and presentations. Have a Traffic Safety Report presented each year to the Selectmen, analyzing the trend in the accidents rate and location as well as in the drivers' behavior and speed, evaluating the impact of previous construction projects and pointing out critical points and potential improvements.

8-8. Signalize Summer Street and Wiggins Avenue

Cooperate with Lexington to sponsor a coordinated set of traffic signals at Summer Street and Wiggins Avenue in Bedford and at McGuire Road and Hartwell Avenue in Lexington to facilitate traffic flow into and out of these areas. This would enhance the Hartwell Road/South Road/Summer Street bypass, which serves as a collector and also provides access to the employment centers along Wiggins Avenue and DeAngelo Drive.

8-9. Extend Wiggins Avenue

Extend Wiggins Avenue to connect with DeAngelo Drive. Consider severing the connection between Wiggins Avenue and Ashby Drive. The new connection will help general traffic circulation in the Town and should relieve unnecessary traffic conflicts along The Great Road. Benefits include easier access and egress for businesses along Wiggins Avenue and DeAngelo Drive, elimination of traffic conflicts and the need for a policeman at the intersection of Ashby Road or Walsh Road with The Great Road during peak hours.

8-10. Improve Route 3 North/Route 128 Interchange

Encourage reconfiguration of the Route 3/Route 128 Interchange. The present configuration cannot handle the current volume of traffic effectively and it is doubtful whether it will be able to handle the anticipated increases in traffic volumes.

8-11. Adjust the Zoning Bylaw Parking Articles

- **Small Car Stalls**—The 30 percent provision is overly generous in light of the current trend toward light trucks and sports/utility vehicles. In addition, the stall dimensions appear to allow spaces that are too small. The provision should be changed to limit the number of small car stalls to 25 percent and increase the dimensions to a minimum of 16 feet in length and 8 feet in width.
- **Parking Space**—There is inconsistency between several of the subsections within this section of the Zoning Bylaw. For example, subsection 10.3.8.1 Nursing/Special Care or Hospital Facility requires one parking space for each sleeping room or each two beds, while subsection 10.3.8.2 Congregate Living Facility requires only one parking space for each ten beds, including visitor parking.

Chapter 9

IMPLEMENTATION

Introduction

A successful comprehensive planning effort is one that achieves general consensus, is practicable and is used as a functioning plan for development. A viable implementation program, setting forth specific action items with a timetable and identification of a responsible party, is a valuable tool to ensure that the recommendations are acted upon. This chapter matches specific implementation methods to the goals and objectives set forth in this Comprehensive Plan. The two most direct means to affect a town's physical development are regulation and expenditure of public money.

Regulatory Control

Zoning is the most important tool a town has to implement its Comprehensive Plan and policies. Regulation is direct, the basis for enforcement is well established, and approval is mandatory before construction can begin. Subdivision regulations, health regulations and general town bylaws are other important regulatory tools.

Several zoning bylaw amendments have been proposed. Most of them directly or indirectly relate to one of the Town's most urgent needs, addressing traffic congestion along The Great Road corridor. Transportation Demand Management is a key provision prescribing a transportation study for any new or added nonresidential use greater than 10,000 square feet and mitigating measures for adverse impacts. Another provision is adjusting FAR to limit the intensity of development in congested areas in order to encourage local professional offices rather than regional business offices or magnet stores in The Great Road corridor. Another is encouraging neighborhood convenience centers near residential areas in order to minimize trips to The Great Road area for small purchases, such as milk, bread or a newspaper.

Funding for Improvements

The Comprehensive Plan calls for some improvements in public facilities that will require spending public money raised by taxes. Some can be bonded, and the debt incurred retired through revenue raised by taxes over the period of the bonds. Other smaller capital improvements such as minor repair of public facilities or the construction of a single ball field can be done by annual capital expenditures as part of the town's Capital Improvement Program (CIP).

Capital Improvement Program

A good CIP process establishes priorities that achieve the Town's goals and vision of itself as expressed in the Comprehensive Plan. The Consultant reviewed Bedford's CIP process and found it to be one of the best. Its CIP is based on a rigorous evaluation of Town needs, both immediate and what can be envisioned for the next few years. The Capital Expenditures Committee has guidelines for submission of capital project requests and standard forms for all to submit their needs. The Town Administrator sends a package to all departments, boards and committees in September to begin the next cycle providing ample time for all to have their input and for the committee to complete their work. When the proposed capital improvement plan is published it has good detail and supportive data. Items are then brought to the Annual Town Meeting for approval.

One refinement to this process might be the following: After Annual Town Meeting, the Capital Expenditures Committee should assess what the actions of the Town Meeting mean both for the administrative operation of departments in the coming year and the work ahead for the next budget cycle. It should try to assess whether the Committee's process accurately reflected the citizens' judgment of what the Town needs. Some questions might be whether a project was disapproved for lack of merit, a different sense of priority, or an inadequate explanation to the public. This group assessment can help departments and the town administration better prepare for next year.

The Planning Board's Role

It is essential that all Boards use the Comprehensive Plan as a reference document. The Planning Board is the leading advocate and controlling authority for implementing the vision and goals of the Comprehensive Plan. Its own regulatory decisions must reflect the intent of the plan. It should routinely evaluate and recommend update of the controlling town bylaws, rules and regulations to ensure they reflect the current vision.

It should also collaborate with each of the various governing boards, commissions, committees and departments to ensure that each focuses on the overall goals and the concrete projects in the Plan that fall under its purview. The Planning Board should work with the Board of Selectmen to convene ad hoc committees as needed to fulfill goals in the Plan.

Another important part of implementation is persuading and promoting private action. This type of action can be very productive and cost effective, such as an Economic Development Commission program for the retention and attraction of business and industry. Currently, the Conservation Commission uses persuasion with landowners about gifts or sale of land or property rights. Likewise, the Planning Board negotiates with property owners to encourage their developments to be more consistent with the Comprehensive Plan and supportive of the public interest.

Finally, the Planning Board should regularly assess progress on the Comprehensive Plan and update it as needed to reflect sound planning, residents' desires and new ideas. The Planning Board should actively solicit such ideas from members of town committees and other residents, and report annually to town meeting on progress in fulfilling the Comprehensive Plan.

Proposals and Recommendations

9-1. Review Implementation of Comprehensive Plan Annually

The Implementation Table presented below should be reviewed and revised annually to reflect new proposals, to delete those completed or abandoned, or to modify actions as they become more fully developed. Keeping the Comprehensive Plan updated will help keep it a relevant document for the Town in its quest to realize its aspirations.

9-2. Report Progress on Comprehensive Plan to Town Meeting Annually

The Town Administrator and Planning Board report each year to the Annual Town Meeting progress made on implementing the Comprehensive Plan including comments on items successfully implemented, other outstanding accomplishments, problems encountered, delays or other extenuating circumstances, new directions or policies made, and changes to the Plan.

9-3. Where Applicable Evaluate Town Meeting Proposals as to Whether They Fulfill the Goals of the Comprehensive Plan

To ensure that the Comprehensive Plan remains a living document that guides town decision making, boards, and committees as well as residents proposing programs and projects to town meeting should report, where applicable, on whether and how they fulfill the goals of the Comprehensive Plan. The Planning Board will also give its recommendation as to whether and how proposals fulfill the plan.

Implementation Table

The Implementation Table, on the following pages, includes suggested actions, lead group(s) with responsibility, and potential funding sources to complete the action. Where more than one group is indicated for responsibility, the first listed is intended to have primary responsibility. It is up to those responsible to involve other necessary participants. The chapter discussing the proposal or recommendation appears in the first column.

A possible funding source is provided for each proposed action. Of course it is to the Town's benefit to avail itself of any grants, state, or federal funding programs. These opportunities change constantly, so it is prudent for people in the Town to remain vigilant for changes within their areas of responsibility.

CHAPTER 9
Implementation Table
Public Actions and Responsibility

Chapter Reference	Actions / Proposals and Recommendations	Responsibility	Funding Source
Land Use			
2-1	Maintain Small Town Character of Bedford	ALL	NA
2-2	Reinforce the Integrity of Existing Residential and Commercial Areas	HC,PB,S,DPW,AR	OB,G
2-3	Promote Mixed Use to Improve Balance Among Land Uses	PB,TA,S	OB
2-4	Monitor and Control the Rate and Overall Level of Development	PB	OB
2-5	Promote Small Businesses Along The Great Road	PB,TA,S	OB
2-6	Preserve Open Space	CC,CP	SH,PF,WA,G
2-7	Purchase Land for Municipal Uses	S,RC,SC,CC	SH,PF,WA,G
Housing			
3-1	Pass Active Seniors Housing Provision	PB,HA,HP	OB
3-2	Encourage Scattered Site Affordable Housing	HA,HP,PB	PF,WA,G
3-3	Participate in the State's Soft Second Loan Program	HP	OB
3-4	Undertake a Comprehensive Review of and Revise the Zoning Bylaw to Promote Affordable Housing	PB	OB
3-5	Protect the Long-term Affordability of Expiring Use Projects	HP	OB

Responsibility	SC School Committee	BA Bicycle Advisory Committee	OB Operating Budget	CI Capital Improvement Program
S Board of Selectmen	CC Conservation Commission	SWC Sidewalk Committee	WA Warrant Article	MH Mass Highway Department
PB Planning Board	HC Historic Preservation Commission		HT Hotel Tax	G Grants
TA Town Administrator	RC Recreation Commission		PF Community Preservation Fund	SH Self Help Grant
HA Housing Authority	PW Department of Public Works		NA Not Applicable	
HP Housing partnership	AR Arbor Resources Committee			
PD Police Department	CP Community Preservation Committee			

CHAPTER 9

Implementation Table

Schedule of Public Actions and Responsibility

Chapter Reference	Actions / Proposals and Recommendations	Responsibility	Funding Source
3-6	Encourage Private Sector Construction of Appropriate Scale, Scattered-Site Affordable and Market Rate Rental Housing	HP,S	OB
3-7	Encourage the Use of the Existing Accessory Apartment Bylaw	HP,S,PB,HA	OB
3-8	Address “Mansionization” of Bedford	PB	OB
Economic Development			
4-1	Contain Industrial and Commercial Uses	PB,TA,S	OB
4-2	Control Capacity of Uses by Floor Area Ratio (FAR) Adjustment	PB	OB
4-3	Encourage Mixed Use	PB	OB
4-4	Create Pedestrian Friendly Shopping Environment	PB	OB
4-5	Design Guidelines for Commercial Uses	PB	OB
4-6	Redevelop 68-88 Great Road Block (Sheldon Block)	PB ,S,TA	NA
4-7	Establish Neighborhood Convenience Services	PB	OB
4-8	Establish Tourism Center	TA,HC	OB,WA,HT,G
4-9	Facilitate Government Relations with Businesses	TA,S,PB	OB

Responsibility		Funding Source	
S	Board of Selectmen	OB	Operating Budget
PB	Planning Board	CI	Capital Improvement Program
TA	Town Administrator	WA	Warrant Article
HA	Housing Authority	HT	Hotel Tax
HP	Housing partnership	PF	Community Preservation Fund
PD	Police Department	NA	Not Applicable
SC	School Committee		
CC	Conservation Commission		
HC	Historic Preservation Commission		
RC	Recreation Commission		
PW	Department of Public Works		
AR	Arbor Resources Committee		
CP	Community Preservation Committee		
BA	Bicycle Advisory Committee		
SWC	Sidewalk Committee		

CHAPTER 9

Implementation Table

Schedule of Public Actions and Responsibility

Chapter Reference	Actions / Proposals and Recommendations	Responsibility	Funding Source
Natural & Cultural Res.			
5-1	Expand Trails in Natural Resource Protection Areas	S,PB,CC	OB,WA,G,SH,PF
5-2	Support Town Festivals	TA,S	OB
5-3	Preserve Old Town Hall	TA,S,HC,CP	OB
5-4	Support & Enhance The Street Tree Program	S,AR,PW	OB,CI
5-5	Ensure Recreational Use of the Concord River fully complies with federal laws	PW,CC	OB
5-6	Purchase Development Rights & Conservation Easements	CP,CC,S	PF,G,WA
Open Space & Recreation			
6-1	Explore Eisenhower and Harvard Land Purchase	S,RC,SC,CC,PB,CP	WA,SH,G,PF
6-2	Create a Plan to Consolidate the Open Space and Trail Network	CC	OB,WA
6-3	Revitalize Depot Park Area	PW, S,TA,PB,BA	WA,OB,G,CI,PF
6-4	Establish A New Bikeway	S,TA,PB,CC,BA	OB,WA,G
6-5	Conduct A Recreation Needs Study	PW,RC,TA,S	OB
6-6	Include Park Space at Convenience Centers	PB	OB

Responsibility	SC	School Committee	BA	Bicycle Advisory Committee	SWC	Sidewalk Committee	OB	Operating Budget	CI	Capital Improvement Program									
S	Board of Selectmen	CC	Conservation Commission	HC	Historic Preservation Commission	RC	Recreation Commission	HA	Housing Authority	PW	Department of Public Works	HP	Housing partnership	AR	Arbor Resources Committee	PD	Police Department	CP	Community Preservation Committee
PB	Planning Board	HT	Hotel Tax	PF	Community Preservation Fund	NA	Not Applicable	WA	Warrant Article	MH	Mass Highway Department	G	Grants	SH	Self Help Grant				

CHAPTER 9

**Implementation Table
Schedule of Public Actions and Responsibility**

Chapter Reference	Actions / Proposals and Recommendations	Responsibility	Funding Source
Services & Facilities			
7-1	Achieve Solutions for High School Improvements	SC	WA,CI
7-2	Monitor and Study Town Space Needs	TA,S,SC	OB
7-3	Update Town Website	ALL	OB
7-4	Promote Civic Involvement	ALL	OB
Circulation			
8-1	Promote and Sponsor Transportation Demand Management	S,PB,TA	OB
8-2	Promote Park and Ride Facilities	TA,PW,PB,S	OB,CI
8-3	Facilitate the Use of Bikes in Town	BA,TA,PW,PB	CI
8-4	Plan an Intersection Improvements Program	PW,PB	WA,MH
8-5	Construct Missing Links in Sidewalk System	SWC,PW,BA	CI
8-6	Develop Public Transportation Terminals	S,TA,PW,PB	WA,MH
8-7	Carry Out a Safety Program on Bedford Roads	PD,S,PW	OB

<u>Responsibility</u>						<u>Funding Source</u>	
S	Board of Selectmen	SC	School Committee	BA	Bicycle Advisory Committee	OB	Operating Budget
PB	Planning Board	CC	Conservation Commission	SWC	Sidewalk Committee	CI	Capital Improvement Program
TA	Town Administrator	HC	Historic Preservation Commission			WA	Warrant Article
HA	Housing Authority	RC	Recreation Commission			HT	Hotel Tax
HP	Housing partnership	PW	Department of Public Works			PF	Community Preservation Fund
PD	Police Department	AR	Arbor Resources Committee			SH	Self Help Grant
		CP	Community Preservation Committee			NA	Not Applicable

**CHAPTER 9
Implementation Table
Schedule of Public Actions and Responsibility**

Chapter Reference	Actions / Proposals and Recommendations	Responsibility	Funding Source
Circulation			
Continued			
8-8	Signalize Summer Street and Wiggins Avenue	S,TA,PW	OB,G,WA
8-9	Extend Wiggins Avenue	S,TA,PW,PB	CI,WA,G
8-10	Improve Route 3 North/Route 128 Interchange	S,TA,PW	MH
8-11	Adjust the Zoning Bylaw Parking Articles	PB	OB
Implementation			
9-1	Review Implementation of Comp. Plan Annually	ALL	OB
9-2	Report Progress on Comprehensive Plan to Town Meeting Annually	PB,TA	OB
9-3	Evaluate Town Meeting Proposals as to Whether They Fulfill the Goals of the Comprehensive Plan	ALL	OB

<u>Responsibility</u>		<u>Funding Source</u>	
S	Board of Selectmen	OB	Operating Budget
PB	Planning Board	WA	Warrant Article
TA	Town Administrator	HT	Hotel Tax
HA	Housing Authority	PF	Community Preservation Fund
HP	Housing partnership	NA	Not Applicable
PD	Police Department		
SC	School Committee	CI	Capital Improvement Program
CC	Conservation Commission	MH	Mass Highway Department
HC	Historic Preservation Commission	G	Grants
RC	Recreation Commission	SH	Self Help Grant
PW	Department of Public Works		
AR	Arbor Resources Committee		
CP	Community Preservation Committee		
BA	Bicycle Advisory Committee		
SWC	Sidewalk Committee		

Appendix

The Town of Bedford has produced this Comprehensive Plan (or Master Plan) in accordance with Massachusetts State law; the pertinent section of the law is reprinted below.

Chapter 41: Section 81D. Master plan; economic development supplement.

Section 81D. A planning board established in any city or town under section eighty-one A shall make a master plan of such city or town or such part or parts thereof as said board may deem advisable and from time to time may extend or perfect such plan.

Such plan shall be a statement, through text, maps, illustrations or other forms of communication, that is designed to provide a basis for decision making regarding the long-term physical development of the municipality. The comprehensive plan shall be internally consistent in its policies, forecasts and standards, and shall include the following elements:

- (1) Goals and policies statement which identifies the goals and policies of the municipality for its future growth and development. Each community shall conduct an interactive public process, to determine community values, goals and to identify patterns of development that will be consistent with these goals.
- (2) Land use plan element which identifies present land use and designates the proposed distribution, location and inter-relationship of public and private land uses. This element shall relate the proposed standards of population density and building intensity to the capacity of land available or planned facilities and services. A land use plan map illustrating the land use policies of the municipality shall be included.
- (3) Housing element which identifies and analyzes existing and forecasted housing needs and objectives including programs for the preservation, improvement and development of housing. This element shall identify policies and strategies to provide a balance of local housing opportunities for all citizens.
- (4) Economic development element which identifies policies and strategies for the expansion or stabilization of the local economic base and the promotion of employment opportunities.
- (5) Natural and cultural resources element which provides an inventory of the significant natural, cultural and historic resource areas of the municipality, and policies and strategies for the protection and management of such areas.
- (6) Open space and recreation element which provides an inventory of recreational and resources and open space areas of the municipality, and policies and strategies for the management and protection of such resources and areas.
- (7) Services and facilities element which identifies and analyzes existing and forecasted needs for facilities and services used by the public.
- (8) Circulation element which provides an inventory of existing and proposed circulation and transportation systems.

- (9) Implementation program element which defines and schedules the specific municipal actions necessary to achieve the objectives of each element of the master or study plan. Scheduled expansion or replacement of public facilities or circulation system components and the anticipated costs and revenues associated with accomplishment of such activities shall be detailed in this element. This element shall specify the process by which the municipality's regulatory structures shall be amended so as to be consistent with the master plan.

Such plan shall be made, and may be added to or changed from time to time, by a majority vote of such planning board and shall be public record. The planning board shall, upon completion of any plan or report, or any change or amendment to a plan or report produced under this section, furnish a copy of such plan or report or amendment thereto, to the department of housing and community development.

A city or town which has an established master or study plan under section eighty-one A and applies for a state grant from the commonwealth shall prepare and keep on file within such city or town an economic development supplement; provided, however, that such city or town shall not be required to prepare such supplement if such city or town has a supplement on file. Such supplement shall be at least one page in length and shall contain the goals of the city or town with respect to industrial or commercial development, affordable housing, and preservation of parks and open space.